THE INFLUENCE OF LEADERSHIP AND SAFETY CLIMATE TOWARDS SAFETY CITIZENSHIP BEHAVIOR IN AN INSTRUMENTATION AND SERVICE COMPANY

SURESH A/L CHANDRA BOSE

MASTER OF SCIENCE
(OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT)
UNIVERSITI UTARA MALAYSIA
July 2018

THE INFLUENCE OF LEADERSHIP AND SAFETY CLIMATE TOWARDS SAFETY CITIZENSHIP BEHAVIOR IN AN INSTRUMENTATION AND SERVICE COMPANY

COLLEGE OF BUSINESS
UNIVERSITI UTARA MALAYSIA (UUM)

By

SURESH A/L CHANDRA BOSE

Dissertation submitted to
Othman Yeop Abdullah Graduate School of Business
Universiti Utara Malaysia
in Partial Fulfillment of the Requirement for
Master of Science (Occupational Safety and Health Management)
July 2018

Pusat Pengajian Pengurusan Perniagaan
SCHOOL OF BUSINESS MANAGEMENT

Universiti Utara Malaysia

PERAKUAN KERJA KERTAS PROJEK
(Certification of Project Paper)

Saya, mengaku bertandatangan, memperakukan bahawa
(I, the undersigned, certified that)
SURESH A/L CHANDRA BOSE (818757)

Calon untuk Ijazah Sarjana
(Candidate for the degree of)
MASTER OF SCIENCE (OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT)

telah mengemukakan kertas projek yang bertajuk
(has presented his/her project paper of the following title)

THE INFLUENCE OF LEADERSHIP AND SAFETY CLIMATE TOWARDS SAFETY BEHAVIOR IN AN INSTRUMENTATION AND SERVICE COMPANY

Seperti yang tercatat di muka surat tajuk dan kulit kertas projek
(as it appears on the title page and front cover of the project paper)

Bahawa kertas projek tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan.
(that the project paper acceptable in the form and content and that a satisfactory knowledge of the field is covered by the project paper).

Nama Penyelia Pertama : **PROF. MADYA DR. CHANDRAKANTAN A/L SUBRAMANIAM**
(Name of 1st Supervisor)

Tandatangan :
(Signature)

Nama Penyelia Kedua : **DR. MD. LAZIM BIN MOHD ZIN**
(Name of 2nd Supervisor)

Tandatangan :
(Signature)

Tarikh : **3 JULAI 2018**
(Date)

PERMISSION TO USE

In presenting this dissertation in partially fulfillment of the requirements for a Post Graduate degree from the Universiti Utara Malaysia (UUM), I agree that the library of this university may make it freely available for inspection. I further agree that permission for the copying of this thesis in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of Othman Yeop Abdullah Graduate School of Business where I did my dissertation. It is understood that any copying or publication or use of this dissertation parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my dissertation. Requests for permission to copy or to make other use of materials in this dissertation in whole or in part should be addressed to:

Dean of Othman Yeop Abdullah Graduate School of Business

Universiti Utara Malaysia

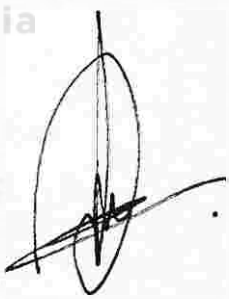
06010 UUM Sintok

Kedah Darul Aman

DISCLAIMER

The author is responsible for the accuracy of all opinion, technical comment, factual report, data, figures, illustrations and photographs in this dissertation. The author bears full responsibility for the checking whether the material submitted is subject to copyright or ownership right. Universiti Utara Malaysia (UUM) does not accept liability for the accuracy of such comment, report, and other technical and factual information and the copyright or ownership right claims. The author declares that the dissertation is original and his own except those literatures, quotations, explanations and summarizations which are duly identified and recognized. The author hereby granted the copyright of this thesis to College of Business, Universiti Utara Malaysia (UUM) for publishing if necessary.

Date: 3rd July 2018

Student signature: 

ABSTRACT

Safety behavior plays a significant role in reducing occupational injuries and accidents at the workplace especially in high risk industries and in manufacturing sectors. By improving the attitudes of the workers in organizations, safety and health aspects as well as the employees' well-being can be better determined. The study examines the perceptions and levels of employees in two local offices situated in Shah Alam and Singapore of a leading multinational instrumentation and service company towards an extended behavioral based safety program known as safety citizenship behavior with regards to six (6) variables; workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership. One hundred and fifty two (152) questionnaires were distributed to the employees. Data collected from the responded one hundred and fifty one (151) respondents revealed that out of the six (6) variables mentioned, five (5) variables; workers participation, safety training, safety communication and feedback, work pressure and safety-specific transformational leadership showed significant relationship towards safety citizenship behavior. These findings have revealed valuable insights while mentioning several probable solutions for the company's management as well as for safety practitioners and future researchers to curb this ever constant threat in the present workforce.

Keywords: safety behavior, safety citizenship behavior, workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure, safety- specific transformational leadership

ABSTRAK

Tingkahlaku keselamatan memainkan peranan yang amat penting dalam mengurangkan kecederaan dan kemalangan pekerjaan terutamanya dalam industri berisiko tinggi dan sektor pembuatan. Dengan memperbaiki tingkahlaku perkerja di dalam organisasi, aspek keselamatan dan kesihatan dan juga kesejahteraan pekerja-pekerjanya mampu dijamin.Kajian ini meneliti persepsi dan tahap pekerja dengan mengambil kira enam (6) pembolehubah; penglibatan pekerja, latihan keselamatan, komitmen pihak pengurusan, komunikasi keselamatan dan maklum balas, tekanan daripada kerja dan gaya kepimpinan transformasi dalam keselamatan-spesifik dengan tingkahlaku kewarganegaraan keselamatan yang merupakan perlanjutan program keselamatan berasaskan tingkahlaku di dua pejabat tempatan syarikat instrumentasi dan perkhidmatan multinasional terkemuka yang terletak di Shah Alam dan Singapura. Seratus lima puluh dua (152) soal-selidik telah diedarkan kepada pekerja-pekerjanya. Data yang dikumpulkan daripada seratus lima puluh satu (151) responden telah mendedahkan bahawa daripada enam (6) pembolehubah yang disebutkan, lima (5) pembolehubah; penglibatan pekerja, latihan keselamatan, komunikasi keselamatan dan maklum balas, tekanan daripada kerja dan gaya kepimpinan transformasi dalam keselamatan-spesifik telah menunjukkan hubungan yang amat ketara dengan tingkahlaku kewarganegaraan keselamatan. Penemuan ini telah mendedahkan pandangan dan beberapa penyelesaian munasabah yang berharga kepada pihak pengurusan syarikat dan juga kepada pengamal keselamatan dan penyelidik pada masa hadapan untuk membendung ancaman yang semakin menular di dalam tenaga kerja sekarang.

Katakunci: tingkahlaku keselamatan, tingkahlaku kewarganegaraan keselamatan, penglibatan pekerja, latihan keselamatan, komitmen pihak pengurusan, komunikasi keselamatan dan maklum balas, tekanan daripada kerja, gaya kepimpinan transformasi dalam keselamatan-spesifik

ACKNOWLEDGEMENT

It has been an arduous journey for me throughout this study especially balancing an immense and irregular work schedule while trying to complete this paper. However, the power of determination was the major driving force for me to finally complete this study, for which I am deeply in debt to those who have given their undying support and trust in me.

I would like to pay my utmost respects to the All-Mighty God, whom I have asked for blessings, direction, knowledge, health and wealth. Secondly, I would like to take this opportunity to convey my deepest gratitude and appreciation to my supervisor, Prof. Madya Dr. Chandrakantan a/l Subramaniam and to my co-supervisor, Dr. Md. Lazim Bin Mohd Zin for your constant advice, guidance and most importantly, your trust in me. Your persistence, knowledge and dedication have earned your good selves a special place in my heart.

Not to forget, I am deeply grateful to my beloved wife, Shamini Suresh; for it is you that motivated me to continue my Masters of Science in Occupational Safety and Health Management. Your sacrifice, your love and your patience all this time throughout my course can never be replaced, for I am utterly beholden. I would also like to dedicate this research paper and to thank my parents and parents' in-law, my family and my children for they have always directly and indirectly been there for me with their blessings to achieve the best in life.

A special thanks to the management of the instrumentation and service company; especially Mr. George Victor, Mr. Peter Morf and Mr. Soosay for all your help during my study period. Your assistance and efforts beyond means to support me in my research will never be

forgotten. In addition, my sincere appreciation to all the employees of the instrumentation and service company in Shah Alam and Singapore offices for your time and effort in aiding me in my research paper. Last but not least I would like to express my sincere gratitude to my fellow batch mates for all your generosity, well wishes and co-operation during the entire phase of the program.

TABLE OF CONTENTS

Title	Page
CERTIFICATE OF DISSERTATION	iii
PERMISSION TO USE	iv
DISCLAIMER	v
ABSTRACT	vi
ABSTRAK	vii
ACKNOWLEDGEMENT	viii
LIST OF TABLES	xiv
LIST OF FIGURES	xv
LIST OF ABBREVIATIONS	xvi
CHAPTER 1 INTRODUCTION	
1.1 Background of study	1
1.2 Problem statement	5
1.3 Research objectives	9
1.4 Research questions	10
1.5 Significance of study	10
1.6 Summary	14
CHAPTER 2 LITERATURE REVIEW	
2.1 Introduction	15
2.2 Empirical studies on safety behavior and safety citizenship behavior	15
2.3 Safety climate	18
2.3.1 Relationship between workers participation and safety behavior	19
2.3.2 Relationship between safety training and safety behavior	21

Title Page

2.3.3 Relationship between perceived management commitment towards safety and safety behavior 25

2.3.4 Relationship between safety communication and feedback and safety behavior 28

2.3.5 Relationship between work pressure and safety behavior 31

2.3.6 Relationship between safety-specific transformational leadership (SSTL) and safety behavior 34

2.4 Summary 37

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Introduction 39

3.2 Theoretical framework 39

3.3 Conceptual or operational definitions 40

3.4 Measurement of variables 45

3.5 List of hypotheses 46

3.6 Research design 47

3.7 Sampling procedure 48

3.7.1 The population of the study 48

3.7.2 The sample size of the study 49

3.8 Instrumentation and measurement 49

3.9 Research approach 51

3.10 Pilot study 52

3.11 Data analysis 53

Title	Page
3.12 Summary	55
CHAPTER 4 FINDINGS OF THE STUDY	
4.1 Introduction	56
4.2 Response rate	57
4.3 Respondents demographic background	58
4.4 Reliability analysis	62
4.5 Descriptive analysis	64
4.6 Correlation analysis	66
4.7 Hypotheses testing	68
4.7.1 Hypotheses results	71
4.8 Summary	72
CHAPTER 5 CONCLUSION AND RECOMMENDATIONS	
5.1 Introduction	73
5.2 Discussion	74
5.2.1 Workers participation towards safety and safety citizenship behavior	74
5.2.2 Safety training and safety citizenship behavior	76
5.2.3 Perceived management commitment towards safety and safety citizenship behavior	79
5.2.4 Safety communication and feedback and safety citizenship behavior	82
5.2.5 Work pressure and safety citizenship behavior	84
5.2.6 Safety-specific transformational leadership (SSTL) and safety citizenship behavior	86

Title	Page
5.3 Implications	88
5.3.1 Theoretical implications	88
5.3.2 Practical implications	89
5.4 Limitations and suggestions for future research	94
5.5 Conclusion	96
REFERENCES	97
APPENDIX A	113

LIST OF TABLES

Table 1.1 - Occupational Accidents Statistics by Sector until October 2017

Table 1.2 - Occupational Diseases and Poisoning Statistics by Sector 2016

Table 1.3 - Number of reported industrial accidents from 2012-2016

Table 3.2 - Pilot study results for present study

Table 3.3 - Cronbach's Alpha measurements

Table 4.1 - Response rate

Table 4.2 - Demographic characteristics of the respondents

Table 4.3 - Reliability analysis before and after items deleted

Table 4.4 - Descriptive analysis of main variables

Table 4.5 - Pearson correlation analysis

Table 4.6 - Model summary A

Table 4.7 - Regression analysis results for safety citizenship behavior

Table 4.8 - Hypotheses results

LIST OF FIGURES

Figure 3.1 - Theoretical Framework

LIST OF ABBREVIATIONS

GDP	Gross Domestic Product
DOSH	Department of Safety and Health Malaysia
SOCSO	Social Security Organization
OSHA 1994	Occupational Safety and Health Act 1994
SCB	Safety Citizenship Behavior
ILO	International Labor Organization
SOP	Standard Operating Procedures
SSTL	Safety-Specific Transformational Leadership
HRD	Human Resources Department
BBS	Behavioral Based Safety
LTI	Lost Time Injury
HSE	Health and Safety Executive
OHSAS	Occupational Health and Safety Assessment Series
SSPS	Statistical Package for Social Science
BAM	Business Area Managers
CM	Country Managers
SD	Standard Deviation
BOMBA	Fire and Emergency Department
BPO	Business Process Outsourcing

CHAPTER 1

INTRODUCTION

1.1 Background of study

Malaysia is no stranger to the global economic sector with its commanding economic growth since the 1970s. As the country sets its eyes on achieving a high-income stature by the year 2020 under the influence of the previous Prime Minister Dato' Seri Najib Razak, it has achieved its middle income status with various economic diversities under its wings (Azer et al., 2016). Under the 11th Malaysian plan, the manufacturing sector is expected to contribute about Malaysian Ringgit 312.5 billion, hitting an annual growth rate of 4.4 percent with a GDP contribution of 22.1 percent bringing a total contribution of final goods export figure of Malaysian Ringgit 812.8 billion or 83.4 percent in 2020. It also projects to have 18.2 percent employment for the manufacturing sector out of the total employment in 2020 (Eleventh Malaysia Plan 2016-2020, 2018). With this, Malaysia plans to be less dependent on capital investments and labor force and enhance more on automation and improving worker skills (The Star, 2015).

While this is good news for Malaysia, unfortunately workplace injuries and accidents have been at an alarming rise in the manufacturing sector. Expanding manufacturing capabilities by building more automated state of the art super or smart factories, bringing in new and innovative technologies, equipment and highly advanced machineries might expose new hazards and health issues to the workers and also be more detrimental to new workforce that are hired for the job as they may not be fully aware of the hazards lurking at their new working environment (Said et al., 2012).

According to the Department of Safety and Health Malaysia (DOSH), until October 2017 the manufacturing sector recorded its highest rate of reported occupational accidents in the country with 1559 cases involving non-permanent disabilities, 86 cases involving permanent disabilities and 46 cases involving fatalities bringing the total accident cases to 1691 (Please refer to Table 1.1).

Table 1.1

Occupational Accidents Statistics by Sector until October 2017 (Updated 6th Nov 2017)

Sector	Non- permanent disability (NPD)	Permanent disability (PD)	Fatalities	Total
Manufacturing	1559	86	46	1691
Mining and Quarry	30	1	7	38
Construction	110	4	63	177
Agriculture, Forestry and Fishery	366	9	18	393
Electrical, Gas, Water and Environment Utilities	67	3	8	78
Transportation, Warehousing and Communications	58	0	9	67
Wholesale and Retail	60	0	5	65
Hotels and Restaurants	77	2	2	81
Finance, Insurance, Real Estate and Business Services	104	2	7	113
Public Services and Government Authority	43	0	4	47
No information	433	26	37	496
Total	2907	133	206	3246

Source: Occupational Accident Statistics by Sector (DOSH)

Occupational diseases and poisoning by sector revealed that the manufacturing sector recorded the most number of cases of reported occupational diseases and poisoning in 2016, with a total of 3298 cases. This was followed by the utilities sector with 227 cases and the public services and government authority sector with a total of 158 cases (Please see Table 1.2).

Table 1.2

Occupational Diseases and Poisoning Statistics by Sector 2016

Sector	Reported Cases
Manufacturing	3298
Mining and Quarry	35
Construction	2
Agriculture, Forestry and Fishery	12
Electrical, Gas, Water and Environment Utilities	227
Transportation, Warehousing and Communications	40
Wholesale and Retail	6
Hotels and Restaurants	13
Finance, Insurance, Real Estate and Business Services	69
Public Services and Government Authority	158

Source: Occupational Diseases and Poisoning Statistics by Sector (DOSH)

From the SOCSO report of 2016, the number of reported industrial accidents was at 35,296 cases in 2012. In year 2013, the figure rose slightly 1.71% to 35,898 cases. The following year showed a slight decline of 1.68% to 35,294 cases while in year 2015, the figure continued to decrease another 2.94% bringing the number of reported industrial accident cases to 34,298. Finally in year 2016 showed the highest year to year increment of 3.05% bringing the number of reported accident cases to 35,304 (Please see Table 1.3).

Table 1.3

Number of reported industrial accidents from 2012-2016

Year	Number of reported industrial accidents	Number of reported accidents
2012	35296	61552
2013	35898	63557
2014	35294	63331
2015	34258	62837
2016	35304	66618

Source: Social Security Organization (SOCSO) Annual Report 2016

This subsequently raises some form of questions as to the level of understanding on safety and health aspects of the employees in the industrial or manufacturing sector in Malaysia. Are the employers in the manufacturing sector in Malaysia turning "a blind eye" towards health and safety aspects even though the numbers of reported industrial accidents are considerably high? Are the laws, regulations and guidelines adequate in terms of educating the employers in the manufacturing sector to make sure that health and safety issues are dealt with? Are the manufacturing companies in Malaysia negating health and safety aspects of their employees to increase productivity?

Modern organizations have now moved away from traditional methods of preventing workplace accidents; which mainly focused on equipment redesign and revision of safety policies and combining them with more behavioral-oriented approaches (Specht et al. 2006) such as safety behavior comprising of elements of safety compliance and safety participation (Griffin & Neal, 2000). According to Mat Zin and Ismail (2012) the Malaysian government has taken steps to provide a legislative framework with the introduction of OSHA 1994 to guide employers and employees maintain optimal standards in safety and health at work, however much improvements can still be done in terms of behavioral safety and how this aspect can be influenced within the organization to achieve a safe harmonious workplace.

Albeit these efforts have been taken into consideration, safety researchers and practitioners still found that safety compliance and participation did not largely eradicate workplace casualties in certain high-risk industries like in manufacturing, chemical or oil and gas sectors (DeJoy et al. 2005) which led to experts exploring more into humanly factors; thus, introducing the concept of safety citizenship behavior (Didla et.al, 2009). Safety citizenship behaviour includes safety behavior in general but opens up more into perspective combining

trust, engagement and support between organizations and workers in a higher level (Hofmann, Morgeson & Gerras, 2003). As such, this research is done to mainly understand deeper on antecedents to which will have an influence on safety citizenship behavior (SCB) focusing primarily on stewardship, safety related helping, whistleblowing, voicing one's opinion, safety civic virtues and initiating improvements on safety especially for the manufacturing sector in Malaysia.

1.2 Problem statement

With an increased demand in new technologies, many existing and upcoming companies are heavily investing in new ways to vastly improve productivity especially in terms of manufacturing, research and development. However, this is at the expense of increased workforce and increased workplace accidents becoming a major issue. These unplanned occurences are major contributors towards injuries, fatalities, production gaps and financial losses as well as property and assets damages. It is vastly difficult to sum up accident prevention without first grasping some fundamental knowledge of causes of these accidents.

In Malaysia, poor work related health and safety practices still exist among employees and high risk job workers. Research on occupational accidents and occupational related diseases are still lacking in this country especially for sectors like manufacturing, construction, agriculture and transportation (Ali et al., 2017). Although OSHA 1994 has comprehensive safety and health regulations that are incorporated from the International Labor Organization (ILO) and international health and safety standards; lack of effective enforcement from the government is still pertinent to push employees' and employers' understanding towards the regulations and acts stipulated especially in big and small companies (Gale, 2016).

Many researches from different backgrounds and fields of expertise have assessed valid theories in accident causations. Initial research done by Herbert William Heinrich stated that that 88 percent of all workplace accidents and injuries were caused by unsafe acts and behaviors (Heinrich, 1959). Then Bowander (1987) concluded that negative changes in employees behaviors with regards to safety would in fact itensify the probability of accidents, apart from techonological errors or system errors. Abdelhamid & Everett (2000) investigated past conclusions of accidents in their research and found that unsafe acts and behaviors of the workers were indeed the primary factor for causing accidents in the construction industry. Gyekye (2010) and Kundu et al. (2015) confirmed the claims from past studies and concluded that employees who lacked the right safety attitude in the organization would indeed cause workplace accidents whereas Muhammad et al. (2016) reiterated employees' attitudes have shown to be significant factor in terms of implementing safety and health in the organization. In general, efforts by various reseaches have drawn the line to accomplish that safety behavior among employees is indeed a predominant factor in influencing accidents at various high risk sectors among employees like in the oil and gas, construction, food & beverage, manufacturing and pharmaceutical industries to name a few (Tucker & Turner, 2011).

Safety behavior among employees in the organization looks to be a crucial element in creating a safe and healthy working environment. Past findings have inidicated that safety behavior among the employees have indeed shown to be influencing workplace accidents; however modern approaches have begun to investigate more on elements that affect safety behaviors that directly influence these accidents in the organizations such as conducting safety audits or safety climate measurements rather than to merely be based by industrial injuries and fatalities statistics (Flin et al., 2000; Turner et al., 2012). By introducing safety

climate initiatives; analyzing specific employee's perceptions and understanding with regards to how well safety and health is considered at the workplace, employers could better identify specific areas within the organization to improve safety and health within the attitudes and acts of their employees.

Zakaria (2002) mentioned that employees who failed to follow standard operating procedures (SOP) coupled with work related stress, apart from poor work conditions and machine maintenance would negatively impact individual safety attitudes, thus lead to the contribution of workplace accidents. Management commitment on the other hand was found to have another positive influence in guiding workers indivual practices for a safer workplace (Cheyne, 2000; Xinxia et al., 2015).

According to Segaran (2013) and Xinxia et al. (2015), employees with good communication and employee - employer relationships pertaining to safety matters managed to have positive outcomes towards individual safety behaviors. Safety training however was shown to have mixed outcomes. From some empirical researches done, safety training was found to be an integral part of determining the level of safety among employees and should be incorporated to on-the-job trainings for skill enhancements in addition to improved employee attitudes and practices (Vinodkumar & Bhasi, 2010; Mullen, 2004; Zakaria, 2002). Researcher Xinxia et al. (2015) however negated this point and mentioned that safety training had less impact towards safety behavior as emphasis was only given to job skills coupled with basic safety knowledge at work. Therefore, more investigations need to be done as the contributions of safety training towards unsafe acts and safety ethics are still ambiguous in most parts of the industrial sectors (Bahari, 2011).

In recent years, studies have expanded to the importance of leadership in the organization towards implementing positive safety understandings and social representations among the employees. This approach is another major contributor towards reducing accidents at the workplace especially in the manufacturing sector (Flin &Yule, 2004). Researches have managed to identifiy that with proper leadership especially safety-specific transformational leadership (SSTL); it indeed decreased workplace accidents (Koster, Stam & Balk, 2011; Rodrigues & Ferreira, 2015). Findings from a study conducted by Hafizah (2013) indicated that transformational and transactional type of leadership was crucial and had the power to influence safety compliance and safety participation among employees in the organization. However, a study done by Shah Rollah, Ishak and Durrisah (2012) showed that leadership did not inherently support employees positive safety behaviors albeit leadership had positively affected improving organizational safety and health performance.

Empirical researches on safety behavior and its influence towards workplace accidents have been more focused towards the construction sector in Malaysia (Ali et al., 2010; Zakaria et al., 2010; Said et al., 2011). From the researchers best knowledge, past studies conducted have also lacked to investigate these relationships especially among employees in specialized service and instrumentation companies with employees who have different job requirements and expectations. Therefore, as the battle to improve and reduce workplace accidents continue, this study aims to investigate the influence of six variables mainly; workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) towards safety behavioral aspects primarily focusing on safety citizenship behavior (SCB) in the instrumentation and service sector. The findings in this study will also pave new grounds for organizations in the industrial sector mainly in the instrumentation and service

area to grasp better knowledge in managing employees' behaviors with regards to safety; thus preventing unwanted occurrences in future at the workplace, decreasing downtime, increasing manufacturing throughput, improving service capabilities while gaining business growth towards achieving a high performance company recognized globally.

1.3 Research objectives

This study is initiated to determine if the six variables; workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety- specific transformational leadership (SSTL) affects the safety citizenship behavior (SCB) among employees in an instrumentation and service company.

Mainly, this study intends to address the following objectives.

1.3.1 - To determine the level of safety citizenship behavior (SCB) among employees in the instrumentation and service company.

1.3.2 - To examine the relationship between workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety- specific transformational leadership (SSTL) with safety citizenship behavior (SCB) in the instrumentation and service company.

1.4 Research questions

The questions developed in this study intended to answer the following.

1.4.1 - What is the level of safety citizenship behavior (SCB) among employees in the instrumentation and service company?

1.4.2 - How would workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) influence safety citizenship behavior (SCB) in the instrumentation and service company?

1.5 Significance of study

The significance of this study ventures into both theoretical and practical aspects. Researches on antecedents of safety behavior and safety citizenship behavior among employees in the industrial sector are very much below expectations unlike in other countries and needs to be improved especially in high risk industries like in the manufacturing sector (Ali et al., 2017; Nor Asma et al., 2013).

The service and instrumentation industry encompasses install bases where products like high technological machineries, advanced systems and customized products are placed into multiples sites. As such, safety climate dimensions towards behavioral safety are not governed unanimously across multiple occupational organizations which may differ in management and policies, thus controlling such factors specifically in service sectors may not

be evident (Vinodkumar & Bhasi, 2009; Coyle, Sleeman & Adams, 1995; Cox & Cheyne, 2000; Mearns, Whitaker & Flin, 2003). Therefore, it is crucial for this study to be conducted with hopes to help and reduce occupational accidents and injuries in the manufacturing, instrumentation and service companies.

There may be possible differences between researches on safety behavior among employees between a developing country like Malaysia and other developed countries (Rahim et al., 2014). According to Houtman et al. (2007), industries from developed nations which are governed by very strict health and safety legislations often strategize good safety and health status by outsourcing manufacturing and hazardous processes to developing countries that lack in safety and health enforcements; like Malaysia. Safety conditions especially in the Malaysian industrial sectors are still rated low compared to industrial sectors from developed countries as safety and health aspects are considered a luxury (Kortum et al., 2010). The Malaysian workforce also differs in terms of diverse ethnicities, traditions, religious views and social hierarchies which are less susceptible to changes compared to Western countries (Selvarajah & Meyer, 2008).

Moreover, there is a considerable void of empirical researches specifically in the Malaysian organizations with regards to leadership style towards aspects of safety and health in organizations in general as the growth and development of Malaysian organizations have been seen to differ from those in the Western nations (Lo et al., 2010). Therefore this study intends to shed more light towards understanding the influences of safety leadership as a critical predictor towards safety behaviors and towards occupational accidents especially in the manufacturing, instrumentation and service sector.

From a practical point of view, the study will be useful for the instrumentation and service company that was chosen for this study. According to the company's sustainability report in 2016, occupational health and safety are only focused primarily in its factories, warehouses and in the field service team. Safety programs and certified work safety management systems are only implemented locally within selected locations. Therefore, incident and accident statistics only reflect to these specific areas within the company and not generally as a whole (Sustainability Report, 2016). Hence, this study is done not only to understand the specific factors that influence safety behavior among employees in the organization, but also to be a fundamental starting point to the management to be more mindful in safety and health aspects and for more studies to be done collectively to all employees within the company. This study is also done so as to ensure that the information is to be shared and its framework to be used to perform other valid studies and analysis to other employees located in the company's sites and offices around the globe.

On another note, it is intended for this study to be used by industrial safety and health practitioners locally or overseas to understand and to interpret all the factors that do influence the safety behavior among the workforce in the manufacturing, service and instrumentation sector. Practitioners can be more aggressive towards convincing the management with regards to strategies and know how in order to minimize or at best curb occupational accidents and diseases from happening at their manufacturing facilities. It could be useful to develop specific safety training regimes for the employees, safety seminars, safety awareness workshops, safety campaigns, safety procedures and safety guidelines, risk assessments, job safety analysis and much more.

Finally, this study is done for the Malaysian government to be up to speed on the current threat that is being faced in terms of occupational accidents and to recognize the influence of workers participation, perceived management commitment towards safety, safety training, safety communication and feedback, work pressure and safety - specific transformational leadership (SSTL) towards safety behavior primarily safety citizenship behavior (SCB) among employees especially in the manufacturing, instrumentation and service sector. OSHA 1994 had not been revised frequently enough since its implementation for more than 20 years albeit many expansions in new technologies (Ali et al., 2017). This study intends to get the government and respective safety and health authorities in the country to incorporate findings in this study to safety and health national conferences and maybe used to revise the existing OSHA 1994 Act 514 and other regulations bound together with this act that would benefit current and future manufacturing and service companies in Malaysia.

1.6 Summary

This chapter focuses on the overall view of the present study. The study aims to highlight the values and importance of safety focusing on safety citizenship behavior (SCB) in related organizations. This chapter also pinpoints the six variables of safety climate which have been identified as antecedents towards safety citizenship behavior such as; workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL). However, past researchers to study to these relationships towards safety behavior and safety citizenship behavior have been limited; primarily in the manufacturing, instrumentation and service sectors. Therefore, the present study will examine the influence between workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) towards safety citizenship behavior (SCB) in an instrumentation and service environment. The next chapter will provide a review of the main variables that are proposed in the present study.

CHAPTER2

LITERATURE REVIEW

2.1 Introduction

This chapter intends to present a general overview of the concepts and relevant literatures that encompasses past findings with regards to safety behavior, safety citizenship behavior and safety climate. Next, past relationship studies conducted between the antecedents of safety climate towards safety behavior mainly; workers participation towards safety, safety training, perceived management commitment towards safety, communication and feedback and work pressure will be analyzed. Past researches on leadership, specifically safety- specific transformational leadership (SSTL) towards safety behavior and safety citizenship behavior (SCB) will also be highlighted and finally hypotheses from each element towards safety citizenship behavior (SCB) will be drawn specifically for the intention of this study in the service and instrumentation sector.

2.2 Empirical studies on safety behavior and safety citizenship behavior

Safety behavior is defined as the perception of employees at the workplace that considers work safety aspects, procedures and regulations set forth by the employer by means of avoiding mishaps and danger onto oneself or onto others (Fam et al., 2012; Hsu et al., 2008). Safety behavior is categorized under two (2) dimensions; safety compliance and safety participation (Neal & Griffin, 2000). Safety compliance is defined as primary activities and willingness of the employees in adhering to safe working protocols and procedures in addition to maintaining a harmonious and conducive working environment. On the other hand, safety participation is defined as employee's behaviors or characteristics that may or

may not directly contribute towards individual safety; however would benefit the organization as a whole with employee's participation towards safety goals, suggestions and improving safety at work (Neal & Griffin, 2000; Aryee & Hsiung, 2016).

The evolution of safety behavior towards safety citizenship behavior (SCB) relates to a higher-order framework which includes safety compliance and safety participation coupled with various other human bebaviors such as; stewardship, safety related helping, reporting safety violations, voicing one's opinion, safety civic virtue (keeping informed on safety related matters) and initiating improvements with regards to safety aspects in the organization. SCB can also be defined as a higher order relationship between staffs and management based on trust, support and fairness and engaging in positive behaviors that profits the organization (Hofmann, Morgeson & Gerras, 2003). SCB offers better control over safety compliance. For instance, safety compliance can never encompass all possible shortcomings in specific work areas and in practice, and often fails as sometimes quick fixes are used to gain better productivity at the workplace (Zohar, 2007).

Past researches have also mentioned safety compliance had some form of negative side effects like; work overload, work stress and conflicts; however none of this were affected with SCB (Didla, Mearns & Flin, 2009).

Efforts to reduce workplace accidents remedied with only engineering and system controls in organizations proved to be futile (Tomas, Melia & Oliver, 1999) which led to understanding other possible safety related causes. Early studies on workplace accidents began to emerge with human errors and unsafe work behavior showing a proximal cause for accidents, thus leading to the foundation of more behavioral based studies (Smith et al., 2003; Gilmore et al., 2002; Mathis, 2001; Hafizah, 2013; Williams, 2005). Safety behavior had been documented

and concluded to have a positive effect in curbing accidents from recurring at the workplace (Martínez-Córcoles et al., 2011; Mullen, 2004). Safety behavior was considered as a method to decrease human errors in container terminal operations in Taiwan (Lu & Yang, 2010). Safety compliance should come from every employee in the organization regardless of authority level, ethnicity or race, influence or individual virtues. Mat Zin and Ismail (2011) mentioned that safety compliance needed to be reinforced to the employees to achieve organizational goals and to eliminate accidents. By monitoring a worker's safety behavior over a known period of time, it had indeed shown a positive influence in implementing effective safety programs and identifying specific areas that have hazards that led to accidents in the construction industry (Mohammadfam et al., 2017).

A study done by Du Xuesheng & Zhao Xintao (2011) on 450 coal mine workers in China revealed that by improving the level of safety climate, the level of safety citizenship behavior among the workers increased which therefore reduced the possibility of accidents at the workplace. Many researches had intensified possible elements that trigger safe working behaviors among workers in most fields of studies. Fugas et al. (2012) mentioned that successful safety compliance and supervisory actions from leaders fully mediated perceived changes in attitudes among the workers; therefore reducing possible accidents. Other studies have concluded that workers participation (Clark, 2013; Mohammadfam et al., 2017), safety training and safety communication (Jagdeep, Chhokar & Wallin, 1984) and supervisory empowerment (Martínez-Córcoles et al., 2011) were crucial in determining the levels of safety ethics among workers in organizations.

These literatures have shown that safety behavior is indeed influential in inculcating a positive, safe and healthy workplace in addition to accident prevention initiatives. These literatures also concluded that working attitudes and ethics differ individually from one person to another, however can be successful collectively with the right approach in determining the right elements that influences overall workers' safety behavior and safety citizenship behavior in the respective organization. Once the individual elements that influences safety behavior is determined, specific behavioral programs and initiatives can be customized to suit for a successful integration towards accident preventions.

2.3 Safety climate

The term safety climate can be defined as a summary of molar perceptions and values that employees have regarding safety and health aspects in an organization at any given point of time (Zohar, 1980; Neal et al., 2000; Brown & Holmes, 1986). Niskanen (1994) described safety climate as "a set of attributes that can be perceived about particular work organizations and which may be induced by the policies and practices that those organizations impose upon their workers and supervisors" while Glennon (1982) concluded that it is "employees' perceptions of the many characteristics of their organization that have a direct impact upon their behavior to reduce or eliminate danger". Dimensions of safety climate has been researched in various sectors especially in construction (Dedobbeleer & Beland, 1991; Gillen et al., 2002), manufacturing sectors (Zohar, 1980), airport ground handling (Diaz & Cabrera, 1997) and health care (DeJoy et al., 2000). Past researches have indicated that although certain dimensions seemed to be standardized throughout various industries, some elements are still lacking and need to be investigated (Hofmann et al., 1995; Siu et al., 2004; Huang et al., 2006). Zohar (1980) identified management's attitude towards providing a safe and

healthy work environment as the most significant dimension that affects safety behavior. Dedobbeleer & Beland (1991) mentioned employees who participate in safety briefings and safety and health exercises often exert better individual attitudes. Other studies have shown that communication and feedback inculcates a sense of well-being hence the effort to reduce accidents and injuries at the workplace will be better (Lu & Tsai, 2008; Griffin & Neal, 2000). Adequate safety training exerts a positive work behavior among the employees in any organizations, however work pressure which may come indirectly as a result of this efforts can draw the line in influencing workers to either react positively or negatively (Lu & Tsai, 2008; Griffin & Neal, 2000; Wu et al., 2007; Lois et al., 2004).

2.3.1 Relationship between workers participation towards safety and safety behavior

Participation is defined as a situation where employees are given the opportunity to make decisions and to act towards specific areas of the business organization. According to Kaler (1999), safety participation is defined as the worker's acts and involvement in safety and health aspects that may affect others at the workplace while Mashi (2014) mentioned it as crucial in the flow of information involving workers towards management for making decisive actions towards safety in the organization. The European agency for safety and health at work (2012) mentioned getting workers to be involved directly helps in developing and protecting the wellbeing among workers towards decreasing the accidents at the workplace in an effective, timely manner.

According to Vredenburgh (2002) and Cohen & Cleveland (1979), employees that have specific safety authorities and accountabilities are deemed to be the best individuals in personifying organizational safety and health decisions and overall safety behavior that

ensure that the employees work hand in hand with management in goals and objective settings. Thus, efforts by management to enforce safety and health at the workplace can be enhanced with employees participation towards activities such as accident investigations, job safety analysis and hazard identification, risk analysis and risk controls (Punnet et al., 2009; Cox & Cheyne, 2000; Dedobbeleer and Beland, 1991; Lee, 1998; Shannon et al., 1996).

In Malaysia, the Occupational Safety and Health Act (OSHA) 1994 indicated that the involvement of employees are essential to that which is includes bylaws that allocate the provision of workers involvement in safety committee initiatives (OSHA Act, 1994).

Such acts of allowing the employee to participate in safety related matters in the organization are an effective strategy to create a safe working environment (Fuller, 1999).

Dillard (1997) performed an investigation involving participation in relation to employee compensation cost in the apparel industry in USA and found that 60 percent of the employees indicated that there was a heightened sense of safety behaviors among them and there was a decrease in workers' compensation costs after they were involved in safety committee strategies. As mentioned by Walters and Nichols (2006), workers who were active in trade unions directly involved in safety and health aspects with the safety committee showed annual injury rates that were lower than the accident injury rates per 100,000 workers set by the HSE.

Researchers Vinodkumar & Bhasi (2010) and Segaran (2013) studied how employees' involvement effected safety behavior in industrial hazardous and steel manufacturing industries respectively and found that workers' involvement in safety evidently broadened worker's mindset and to be more prudent in safety and health issues in the organization. In small and medium enterprises, workers involvement showed a significant correlation towards

safety behavior and was suggested that safety involvement among the workers needed to be strengthened in health and safety aspects to trigger a positive safety attitude in efforts to reduce workplace accidents (Hong, Surienty & Hung, , 2011).

In retrospect to these literatures; employee participation not only decreases occupational accidents at the workplace but also directly influences the safety behavior of the workers in the organization added to decrease costs, more effective organizational management and a more harmonious working environment for all. These past studies have evaluated on employees that are permanently based in those sectors. Therefore employees have more time in getting involved with health and safety aspects. The present study intends to venture workers involvement in a service and instrumentation sector where some of the employees are subjected to frequent travelling around install based sites, therefore limiting constant and direct involvements between employees and the organization, as such the following hypothesis is ascertained;

H1 – Workers participation towards safety would influence safety citizenship behavior among employees in the instrumentation and service company.

2.3.2 Relationship between safety training and safety behavior

Trainings are one of the many ways used by Human Resources Department (HRD) to improve worker competencies in any organization (Lauver, 2007; Hughes & Ferrett, 2005; DeJoy et al., 2000; Zohar, 2002). Training workers on safety aspects empowers knowledge and means for the employees to work more efficiently knowing immediate hazards and risks, thus creating a sense of safe work attitude which positively influences lowering accidents

rates (Law, Chan & Pun, 2006; Smith et al., 1978; Marsh et al., 1998). Adequate safety training is crucial when it comes to making sure the organization is prepared in emergency situations (Lois et al., 2004) as organizations with well in-tact emergency response are able to accommodate for large scaled accidents rather than those companies that are not (O'Brien, 2003). Organizations most valuable assets are the employees and the workers' skills and initiatives are the forefront and most crucial in identifying shortfalls and resolving problems, finding possible risks, initiate changes, taking responsibility therefore enhancing and improving safety performance (Pfeffer & Veiga, 1999; DeJoy et al., 2000; Harvey et al., 2001; Zohar, 2002; Azimah et al., 2009). It has also been associated with reduced Lost Time Injury (LTI) liability costs due to accidents, claims and machinery damages (Harshbarger & Rose, 1991).

Smith et al. (1978) and Mashi (2014) mentioned that organizations should invest more time in proper safety and health training, by which can give a clear path of possible accidents that may occur at the workplace which therefore could be predicted. Researcher, O' Toole (2002) performed a study to investigate accidents at constructions sites and mentioned that many employees who have worked long in the organization who only gained knowledge of the risks in their daily jobs by experience and know-how; insufficient trainings for that matter will only increase the possibility of accidents waiting for happen. Effective safety training in any organization educates the employees on potential hazards and prevention methods, which increases safety awareness and safety attitudes. The likelihood of overall improvements in safety behavior influences individual safety attitudes (Ajzen, 1991; Wong et al., 2000; Ghani et al., 2010; DeJoy et al., 2000; Harvey et al., 2001).

Rougton (1993) believed that safety training should be done via a systematic approach so that a comprehensive, well documented training regime is done for the employees that help in terms of re-education and re-training efforts done for a continuous improvement in personal behavioral attribute of the workers. Lu & Yang (2010) conducted a study to evaluate the antecedents of safety climate and how it affected safety behavior among 155 workers in the passenger ferry companies in Taiwan. The results concluded that out of the five dimensions; two (2) dimensions which are safety training and emergency preparedness to have a significant effect towards influencing safety behavior among the workers.

Another research done by Vinodkumar & Bhasi (2010), studied eight (8) major accident hazard process industrial units in Kerala, India in terms of safety management practices and safety behavior. The researcher found that safety training as the most important element in safety management practice that predicted employee's individualistic behaviors. The evidence supported previous findings from Komaki, Heinzman, & Wyld (1980) that performed a study among vehicle maintenance employees and concluded that safety training had a very significant impact towards employees' changes in behavior.

Safety management practices and safety compliance through the mediation of safety participation revealed that out of the six (6) safety management practices that were analyzed; safety training was found to be indirectly affecting safety compliance through safety participation among the workers (Subramaniam et al., 2016). However, another study revealed that out of 3970 manufacturing workers from 42 companies in Zhongshan City, China, safety training did not significantly impact safety behavior as it was predominantly done for new employees and focused on only improving safety knowledge in parallel with job knowledge and done on an ad-hoc basis (Xinxia et al., 2015). Again, this is not in line

with findings from Hughes & Ferrett (2005) that have stressed that safety training should be in line with new hire orientations to enhance their job skills and safety and health awareness, thus influenced individual safety behavior.

Empirical researches on safety training and its influences on safety behavior seems to be lacking in Malaysia, however a study conduct in a local semiconductor industry (Kamarrudin et al., 2009) confirmed that safety training had largely influenced safety behavior among the workers. The participants in the study underwent 3 computer based safety trainings and the results indicated that 86.7 percent of the participants reported an increased safety awareness and understanding on safety and health initiatives at their workplace.

As such from almost all past literatures reviewed, safety training looks to exert a strong influence towards employee safety behavior in many high risk industries generally in the manufacturing, construction, transportation and service sectors. However, these studies have evaluated on employees that are permanently based and have more time in getting proper safety training and knowledge. Therefore, the present study intends to evaluate safety training in a service and instrumentation sector where some of the employees are subjected to frequent travelling around install based sites on a need to basis and may have a gap in fulfilling regular classroom trainings and depend more on e-learnings and on-the-job skills, therefore the following hypothesis is ascertained;

H2 – Safety training would influence safety citizenship behavior among employees in the instrumentation and service company.

2.3.3 Relationship between perceived management commitment towards safety and safety behavior

The responsibility of management in an organization plays an important role in determining and spearheading the company towards ascertaining business opportunities and growth. Thus it can be said that the perception of management commitment towards safety is defined as the general opinion of collective values among different hierarchical levels that places safety towards achieving its goals in the organization (Neal & Griffin, 2004; Lingard et al., 2012; McDonald et al., 2009; Molenaar et al., 2009). The pledge set forth by the management could be said as a top down approach to instill safety aspects towards its workers. As such, employees in an organization will be able construe safe working ethics if management has full control to take part and prevent unwanted occurrences to a point that a supportive and proactive working environment is demonstrated (Marsh et al., 1995; Hsu et al., 2007).

Management commitment has also been widely recognized to positively influence a balanced safe and healthy workplace in most organizations especially in high risk industries (Al-Refaie, 2013; Fruhen et al., 2013; Hofmann & Morgeson, 1999; Hofmann & Stetzer, 1996; Michael et al., 2005). Past researchers have also confirmed that management commitment is without a doubt, one of the most significant factors in safety climate studies, safety programs and investigations of occupational injuries at the workplace (Mat Zin & Ismail, 2011; Mashi, 2014; Zohar, 1980; Flin et al., 2000; Neal & Griffin, 2004). A committed management involves in the overall organizational affair and engages in reasonable actions towards achieving its company mission and visions, whereby if lacking would duly contribute towards higher accident rates (Cooper, 2006). Expert studies from Cox & Flin (1998), Cox & Cheyne (2000) and Cooper (2006) stated that management commitment showed a repeatable

trend in significantly reducing injuries and unwanted occurrences in accident investigations involving high risk industries.

As there have been past studies linking management commitment to reducing accidents at the workplace, there have been numerous studies that found management commitment to be a precursor that influences safety attitudes among the workers. Dedobbeleer & Beland (1991) and Thye (2006) concluded that out of 3 factors, management commitment towards safety emerged as the most significant factor towards employee participation and capable of changing the behavior of their employees in the organization. Jaselski et al. (1996) reported that commitment and support by management would significantly drive up performance of safety and that such acts would benefit employees by acting as a role model and to further entrust every employee that management is serious about safety issues in the organization. This is evident in past empirical studies for example; Vinodkumar & Bhasi (2010) conducted a study on safety management practices towards safety behavior for 1566 employees who worked in a total of eight (8) highly risked process companies in Kerala, India. The research concluded that management's involvement indicated a high significance towards safety compliance among the workers. Management commitment's initiatives portray individual perceptions on the level of efforts played in the organization towards safety and health thus enhancing safety awareness. Empirical research by Fernández-Muñiz et al. (2012) derived, even in highly certified companies with a well implemented health and safety management system, management commitment directly influenced safety behavior among the employees with the implications of managers and leaders rewarding the employees based on their safety attitude while reducing work pressure and stress that comes with the job. According to Fernando et al. (2008), management commitment pushes employees in the organization to achieve a stronger sense of realization towards safety compliance and to ensure that everyone

in the organization is certain about their individual safety and wellbeing responsibilities. In the efforts of reducing the growing number of occupational accidents in the oil and gas industry, Cox & Cheyne (2000) performed an investigation on safety culture among 375 employees in an offshore environment and concluded that management played an important role in driving 3 major workgroups comprising of supervisors and leaders, production workers and drilling workers towards enhancing their awareness in safety and health aspects; thus influencing safety compliance within the workforce.

Reviewing these past literatures has indicated that a committed management is a strong element in influencing safety compliance and participation especially in high risk industries. These literatures have also investigated employees that are permanently based in those specific areas. The present study intends to evaluate this element where employees especially in the service and instrumentation sector have two types of workers; regular workers in the offices and also employees that are subjected to field jobs like installations and commissioning of high technology machineries within high risk areas. It also intends to evaluate if the service and instrumentation's management efforts do encompass such initiatives so that the field workers adhere to good safety and health attitudes regardless of multiple and different work areas. Therefore, the following hypothesis is derived;

H3 – Perceived management commitment towards safety would influence safety citizenship behavior among employees in the instrumentation and service company.

2.3.4 Relationship between safety communication and feedback and safety behavior

Håvold & Nesset (2008) defined safety communication and feedback as how an organization provides an effective platform that includes the methods, frequency and openness in communicating (Azimah et al., 2009; Neal & Griffin, 2002) for exchange of information between workers and management to ensure that employees understand their roles and responsibilities as to improve and remedy existing issues within their daily tasks with regards to safety and health aspects at the workplace (Chong, Ramayah & Subramaniam, 2016).

Safety communication and feedback relates to the employees perception on how well the organization relays safety related information and how in it valued within the workplace (Glendon & Litherland, 2001; Mearns et al., 1997; Varonen & Mattila, 2000; Wills, Biggs & Watson, 2005; Zeitoun, 2014). Simply put, it is a two way transmission with means of providing a clear, unbiased, conclusive message which entrusts workers towards understanding the importance of a safe and healthy work environment which positively influences business growth within the organization (Sawyer & Guetzkow, 1965; Nielsen, 2000). Previous researches have highlighted that an effective interaction between multiple hierarchies and work levels of employees helps to strengthen safety related interventions by means of understanding and communicating reports of unsafe acts, regulations and procedures in a well thought and timely manner (Harper et al., 1997; Tan-Wilhelm et al., 2000).

In the efforts to reduce accidents at the workplace, Mearns et al. (2003) pointed out specifically that safety communication and feedback among the workforce is a key factor in self learning that proceeds from audits and previous mishaps in the past. The frequencies of occupational accidents that have occurred at the workplace have been positively linked to the level of communication and feedback in the organization (Cohen, 1977; Vredenburgh, 2002; Cox & Cheyne, 2000; Mearns et al., 2003). Therefore, a well laid process and system that combines an effective collaboration of ideas would definitely be beneficial in improving and reducing the amount of accidents in the organization. In previous years, organizations relied mostly on sending out memos, hardcopy surveys, posters, investigative reports, pictorials, photographs or updating notice boards, however with current technological advancements; organizations can opt to use more effective approaches for example, via email, online surveys, intranet share points, video animations, online statistics reports and annual reports.

Previous researchers have also concluded that there are multiple evidences that proposed a significant relationship between safety communication, safety feedback and safety behavior (Alsamadani et al., 2013; Hofmann & Morgeson, 1999; Mearns, Whitaker & Flin. 2003; Stave et al., 2008; Varonen & Mattila, 2000; Zeitoun 2014; Clarke, 2006). In the past, Cheyne et al. (1998) studied the impacts of job safety communication and feedback with 915 workers in a large multinational manufacturing organization towards safety attitudes. The research ascertained factual evidence that safety management initiatives persuaded group process which included communication among workers and personal involvement towards the organization which in turn influenced individual worker's attitudes and job culture.

This finding was further enhanced by Vinodkumar & Bhasi (2010) who added on stating that a positive bidirectional communication can lead to positive expansions of individualistic safety behavior among the workforce.

Also, according to Sampson et al. (2014) who researched on 120 pipefitters in the United States, construction and crew members who had bidirectional inter-relations and communicated constantly and openly on safety aspects within the organization portrayed a higher level of safety compliance and safety participation suggesting other organizations to look into enhancing a good communication system at the workplace.

With much study done over the years, safety communication and feedback seems to show a high level of connotation in reinstating worker's attitudes in multiple organizations stressing into reducing accidents and worker's behavioral changes towards safety. In the service and instrumentation sector particularly in the organization chosen for this study, some of the employees are not stationed in permanent job environments; however frequently stationed in multiple job locations where direct interaction between workers and their primary work environment are reduced. Workers in this field mostly also report to leaders who are not stationed in the same work environments as well, and with limited communication which can only be done on an on a need basis via emails, phone or occasional face to face meetings. In lieu of this, this study intends to evaluate this element with the presence of such gaps and to see if safety communication and feedback does play a part in this sector, therefore hypothesizing;

H4 – Safety communication and feedback would influence safety citizenship behavior among employees in the instrumentation and service company.

2.3.5 Relationship between work pressure and safety behavior

Under the perspective of HSE (2004), work pressure is defined as an adverse reaction of a person's bodily reactions or behavioral changes towards the work demands placed upon them taking into account the imbalance of individual inner competencies, support and job demands. The direct influence of work pressure comes from high levels of fatigue or inflexible working hours or conditions experienced by the workers (HSE, 1999; Sharpe & Wilks, 2002). The element of work pressure is pertinent especially for organizations that tend to veer in the direction of cost savings towards employing workers based on the manufacturing demands and individual support towards making sure that the employees are given the right foundation to ease their daily job requirements. For example; long hours of work, work expectations and top management demands are a few elements that influence individual work pressure (James & Arroba, 1999; Jex & Beehr, 1991).

Past researchers have been able to identify the role of work pressure towards influencing occupational accidents at the workplace. The negative influence of work pressure, or called as distress; will more likely lead to the risk of workplace accidents (Hilton & Whiteford, 2010; Trimpop et al., 2010). Studies conducted by (Wagenaar & Groeneweg, 1987; Lawton, 1998; Wright, 1986; Hofmann et al., 1995) found that time pressure significantly influenced production demands which pushed workers to perform many short cuts that influenced safety process; thus leading to accidents. Therefore, albeit the organization's attempt to reduced overhead costs and liabilities from another perspective; it is actually increasing liabilities in terms of increased occupational accidents at the workplace.

Job stress has been also positively linked to predicting behavioral changes among workers that may influence accident involvements. Clissold (2005) aimed to explore the buman effects towards organizational factors and accidents. The researcher organized questionnaires to 1800 employees with 800 returned feedbacks of a large industrial company and concluded that workers that are influenced with less stress at work have more positive attitudes towards safety. Kirkcaldy et al. (1999) and Norris et al. (2000) added that general atmosphere at the workplace did have a direct affect towards positive or negative changes towards workers' behaviors. Albeit there have been positive influences, studies have also shown that work pressure did not significantly influence employee's attitude towards safety in certain situations. A research to study the effects of safety climate towards job tasks especially for construction and maintenance workers in Australia revealed that management commitment superseded job pressure in affecting workers awareness towards safety. The researcher argued that in the construction and maintenance sector, work pressure is of the norm and depending on project completions, therefore does not significantly impact behavioral changes as one expects (Glendon & Litherland, 2001). Also, Fernández-Muñiz et al. (2012) argued that work pressure was not a standardized element in influencing safety behavior. The researcher studied the elements of safety climate and its effects towards safety behavior in one hundred and thirty one (131) OHSAS 18001 certified organizations in Spain and found companies that adhere to strict audits and safety compliance had employees showing lesser work pressure and their workers placing safety and health above others even in production ramp ups.

Analyzing these literatures has shown although job stress has indeed been positively linked to prevention of accidents; there have been both positive and negative conclusions towards workers attitudes and ethics towards safety. These literatures have been based on employees that are based permanently at their respective sites. In the service and instrumentation sector particularly in the organization chosen for this study, some of the employees are not stationed in permanent job environments; however frequently stationed in multiple job locations. Job pressure varies depending on different locations and customer expectations that purchase the systems for their production. As mentioned by Fernández-Muñiz et al. (2012), job stress needs to be re-evaluated in organizations that are not inclined by frequent safety audits or certified in OHSAS 18001, therefore this study aims to analyze the element of work pressure in this sector by hypothesizing;

H5 - Work pressure would influence safety citizenship behavior among employees in the instrumentation and service company.

2.3.6 Relationship between safety – specific transformational leadership (SSTL) and safety behavior

Safety leadership is defined as an array of interactions between leaders and their subordinates within an organization that strive to unanimously achieve a common safety standard within the workplace (Wu, 2005). Safety leadership in organizations has two (2) attributes or styles; namely safety transformational leadership and safety transactional leadership (Clarke, 2013; Lu & Yang, 2010). Safety transformational leadership; introduced by Burns (1978) and expanded by Bass (1985) is based on a higher level of relationship between inspirational leaders who exert as a role model to workers in an organization while safety transactional type leadership focuses more on task oriented leadership where employees are rewarded based on the level of safety initiatives among the workers (Krause, 2005).

According to Unnikrishnan, Iqbal, Singh, & Nimkar (2015) a good sustaining safety leadership is crucial in reducing the number of occupational accidents and in promoting safety and health among the general workforce at the workplace. A more proactive approach within an organization that includes safety leadership is essential in preventing and reducing the number of workplace accidents (Zohar, 2002).

In recent years, researchers have found positive links between that of leadership styles and human behaviors (Flin & Yule, 2004). These claims were also supported by Mullen et al. (2011), Giberson et al. (2009) and Fernández-Muñiz et al. (2014) who reiterated that there is a need for a good safety leadership to promote and inspire positive work ethics among the employees at the workplace. Kuhnert & Lewis (1987), Lu & Yang (2010) and Yukl (2006) found that transformational leaders who expressed confidence in others were able to change

worker's perceptions by focusing more on the individual needs and values which resulted in a high level of interactions more than transactional type leaders; therefore positively influencing safety participation and safety compliance of the workers (Christian, Bradley, Wallace, & Burke, 2009; Jiang & Probst, 2016; Clark, 2013). Khan et al. (2014) backed these past findings by performing a research on leadership to draw a conceptual framework in an established oil and gas company in Malaysia and concluded that transformational and transactional leadership positively affected safety ethics with safety motivation as a positive mediator.

Transformational leadership that incorporates focused tactics and know- how by the leaders to their subordinates in order to promote better occupational safety is known as safety-specific transformational leadership or SSTL (Barling et al., 2002). SSTL seemed to exert more positive outcomes compared to transformational and transactional leadership styles alone especially in terms of heightening the sense and attitudes of the workers in their respective work sectors (Koster, Stam & Balk, 2011; Barling, Loughlin, & Kelloway, 2002; Kelloway, Mullen, & Francis, 2006; Barling et al., 2002; Clarke, 2013; Kelloway et al., 2006; Mullen et al., 2011). Smith et al. (2016) tested these facts and studied the significance of transformational and passive leadership styles towards safety behavior within 398 professional firefighters in eastern United States and proved that safety-specific transformational leadership (SSTL) had indeed a positive impact towards safety climate and individual attitudes, while negating passive leadership styles.

As such from past literatures reviewed, leadership style seems to be another crucial element in determining employee's safety behavior in many high risk industries generally in the manufacturing, construction, transportation and service sectors. The present organization that

is being evaluated in this study has been known to invest much time and effort in training and evaluating leadership skills with much e-learnings, seminars and workshops. However, some of their subordinates are subjected to frequent travelling around install based sites on a need to basis, therefore may not have significant exposure to their superiors or leaders. Since occupational safety and health is also not standardized throughout the organization, the present research aims to find out if superiors and managers in the organization that have been subjected to much leader-based trainings highlight the importance of safety and health within their departments or divisions and to measure the impact that is ascertained towards the staffs; therefore hypothesizing;

H6 - Safety-specific transformational leadership (SSTL) would influence safety citizenship behavior among employees in the instrumentation and service company.

2.4 Summary

From the literature review above, it is evident that employees are the forefront of any organizations therefore their involvements to health and safety aspects are crucial in implementing a harmonious working environment. Researches have shown that employers in any organization are encouraged to invest in regular safety and health trainings in addition to job competency trainings for their staffs. This gives a sense to the employees that safety and health aspects are also taken seriously for the benefit of the employees and employers in the long run. Most research findings have concluded that top management is viewed as a catalyst in making sure that health and safety aspects are pertinent by acting as a role model to push health and safety awareness in respective organizations. Studies have also concluded that by providing effortless means of regular communication and feedback among employers and employees; it bridges the gaps therefore gives a better sense for the employees to communicate specific safety shortfalls in the workplace. Many experts believe that management should always consider with the demand in production needs, the element of job pressure should also be kept at bay among the employees so as to make sure that the employees react accordingly by not taking risks that may jeopardize themselves towards probable near misses or actual accidents. As shown from past empirical researchers, with the growing number of industries, major industrial players should also consider the element of leadership and by recruiting or training more leaders that are capable of influencing staffs and subordinates under their wing. Therefore, the term "lead by example" can be instilled whereby leaders like supervisors or managers who portray good safety and health ethics and attitude in the organization are able to create a positive working safety culture towards staffs and subordinates within their purview. In a nutshell, it can be recapitulated that although working ethics and attitude are different between individuals, with the right strategy of

workers abiding the rules and regulations in addition to worker's commitment towards safety, it can be successfully implemented to influence overall employee behaviors. Specific behavioral approaches that are continuously performed by the employers can be fitted and integrated into the organizations to cater in reducing workplace mishaps and accidents. Therefore, the conceptual framework in this study was designed based on the literature review above which will be discussed further in the next chapter.

CHAPTER3

RESEARCH METHODOLOGY

3.1 Introduction

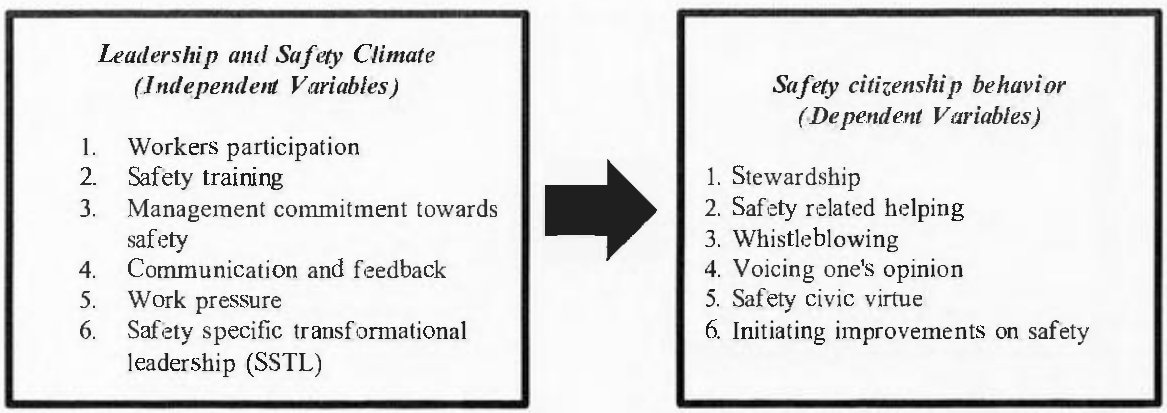
The purpose of this chapter is to further explain on methodological perspectives undertaken in this study, which includes collection of empirical evidences, procedures and data which are crucial to achieving the study objectives. The dependent and independent variables are defined operationally, followed by the research approach and design, instrumentation used, population, sample group and reliable methods in interpreting the data collected in the measurement of contributing factors.

3.2 Theoretical framework

A theoretical framework is a set of a structured and logically developed model between theories, views and variables that have been given importance through initial data collection and through analyzing past literatures that have been deemed relevant to the present study (Sekaran, 2005; Sekaran & Bougie, 2016). Thus, a thorough theoretical framework was developed based on past literatures by Vinodkumar & Bhasi (2010), Cox & Cheyne (2000), Cheyne et al. (1998), Glendon & Litherland (2001), Barling & Kelloway (2002) and Hofmann et.al. (1995) consisting of the six (6) independent variables; workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) towards safety citizenship behavior (Please refer to Figure 3.1)

Figure 3.1

Theoretical Framework



3.3 Conceptual or operational definitions

Behavioral aspects in efforts to reduce workplace accidents have been recognized as one of the main influences especially in challenging industries (Geller, 2001; Khader, 2004; Krause, Seymour, & Sloat, 1999; Mullen, 2004; Neal et al., 2000; Seo, 2005). Safety behavior is defined as the perception of the workers in their respective organizations that takes into account work safety, rules and regulations that have been set forth by the employers in order to avoid hazards and risks that the workplace (Fam et al., 2012; Hsu et al., 2008; Ibrahim, 2012). According to Neal and Griffin (1997) and Neal and Griffin (2000), safety behavior is influenced by safety compliance and safety participation among the employees.

Therefore, workers should commit themselves through a high degree of safety compliance and participation to ensure that the organization does not suffer the impact of poor health and safety (Fernando et al., 2008).

Safety compliance represents the willingness of the employees in abiding to safe working protocols and procedures in addition to maintaining a productive working environment (Neal & Griffin, 2000; Aryee & Hsiung, 2016). Griffin & Neal (2000) and Vinodkumar & Bhasi (2010) mentioned that safety compliance should be evaluated by individual worker's performance by accessing self-realization of work safety and the level of understanding of the workers in terms of rules and regulations set by the organization.

According to Mat Zin and Ismail (2011), safety participation describes behaviors that are not directly contributing to workers personal safety but in turn creates an environment that assures safety at the workplace. Safety participation besets more on voluntary actions and self-awareness from the employees to make a change towards safety at the workplace (Griffin & Neal, 2000; Parboteeah & Kapp, 2008). Further researches within this aspect had proven that safety participation can be assessed by the employee's personal feelings, individualistic expectations, current organizational trends and convenience which can be molded towards a positive safety attitude within the organization (Nohammer, Schusterschitz, & Stummer, 2010).

The concept of safety climate refers to employees' perception of safety within the workplace and the views that are influenced by organizational or individual factors that affects the worker's attitudes towards safety. Collective safety climate perceptions are ascertained from the measurements of each individual elements of safety climate pertinent to the study being done in the organization (Wu, Liu, & Lu, 2007).

Workers participation is a situation where employees are given a fair amount of authority in decision makings and acts towards the organization in terms of safety and health aspects (Kaler, 1999; Mashi, 2014). Employees who are deemed accountable and given the opportunity by the management towards hazard identifications, safety audits, risk analysis, risk controls and safety guidelines are able to exert better safety and health decisions and overall safety behavior from a bottom-up approach (Vredenburgh, 2002; Cohen & Cleveland, 1979; Punnet et al., 2009; Cox & Cheyne, 2000; Dedobbeleer & Beland, 1991; Lee, 1998; Shannon et al., 1996),

Knowledge in safety can be enhanced by regular trainings. An organization that needs employees to be actively involved in safety activities should be given proper education on safety. Safety training can be defined as a strategy by which an organization intends to standardize a common safety mindset among the employees. Effective safety education teaches the employees on hazard preventions, increases awareness in turn heightens safety attitudes (Ajzen, 1991; Wong et al., 2000; Ghani et al., 2010; DeJoy et al., 2000; Harvey et al., 2001). Therefore, safety trainings should be promoted regularly in the organization by means of new hire orientations, measured via a consistent systematic regime, documented and with employees regularly assessed for continuous positive effects on individual safety attitudes (Rougton, 1993).

Past researchers have also confirmed that management commitment is one of the most significant factors in safety climate studies, safety programs and investigations of occupational injuries at the workplace (Mat Zin & Ismail, 2011; Mashi, 2014; Zohar, 1980; Flin et al., 2000; Neal & Griffin, 2004). Thus perception of management commitment towards safety can be described as a common view of values among different facets in the

organization that acts to achieve a common safety standard (Neal & Griffin, 2004; Lingard et al., 2012; McDonald et al., 2009; Molenaar et al., 2009; Thye, 2006; Jaselski et al., 1996). Vinodkumar & Bhasi (2010) mentioned that employees tend to predict the pledge of the management by its competencies in dealing with safety problems, safety issues, past and present safety incidences that have occurred and concerns shown towards safety at the workplace.

Håvold & Nesset (2008) described safety communication and feedback as a bi-directional system that provides methods and openness in line of communication between employees and employers which are unfazed, whereby providing employees to understand their roles and responsibilities which can improve existing issues within their daily job roles with regards to safety and health at the workplace (Azimah et al., 2009; Neal & Griffin, 2002; Chong, Ramayah & Subramaniam, 2016). Vinodkumar & Bhasi (2010) and Cheyne et al. (1998) added on stating that organizations that maintains proper dissemination of safety matters via effective technological approaches and regular face to face interactions between workers and management inculcates a positive two way feedback that can lead to broader safety behavior among the workforce.

Work pressure is depicted as how employees negatively react both physically and mentally due to work demands set upon them by which the workers' inner competencies do not satisfy the job requirements (HSE, 2004; HSE, 1999; Sharpe & Wilks, 2002). Employees often suffer stress at work when organizations are understaffed to perform the needed tasks or if the employer failed in managing employees' proper work schedules. Workplaces that frequently have high resentments among workers experience a proliferation of negative behavioral

changes that are detrimental towards safety and health aspects within the organization (James & Arroba, 1999; Jex & Beehr, 1991) and therefore needs to be evaluated effectively.

Safety leadership is defined as a series of interactions between leaders that lead as a role model and staffs within the organization towards achieving a common safety standard within the workplace (Wu, 2005). Safety leadership especially safety-specific transformational leadership (SSTL) encapsulates four (4) types of behaviors exerted by the leaders which are idealized influence, inspirational motivation, intellectual stimulation and individualized consideration (Barling, Loughlin & Kelloway, 2002). Koster et al. (2011), Jiang & Probst (2016) and Inness et al. (2010) mentioned that leaders who are idealistically inclined often portray positive safety attitudes and actions that tend to inspire other fellow work colleagues, thus increasing overall safety awareness and trust. Inspirationally motivated leaders tend to exert a commanding stand and to motivate employees towards safe working behavior, intellectually stimulated leaders encourage fellow staffs to confront management when there are safety violations or gaps within the organization while leaders who characterize individualized consideration often lend a coaching hand and mentor other fellow workers to improve and develop themselves in terms of safety and health aspects.

3.4 Measurement of variables

A questionnaire consisting of sixty nine (69) items were used to evaluate the relationship between workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) towards safety citizenship behavior (SCB).

The questionnaire was divided into three (3) sections; Section A consisted of questions that took into account the respondents' demographics. The remaining sections B and C consisted of four (4) items on workers participation and five (5) items on safety training that were taken from the study done by Vinodkumar & Bhasi (2010), seven (7) items that were taken from the study conducted by Cox & Cheyne (2000) for the element of perceived management commitment towards safety, five (5) items on safety communication and feedback that were based on questionnaire used by Cheyne et al. (1998), nine (9) items that were taken from Glendon & Litherland (2001) for the element of work pressure and safety-specific transformational leadership (SSTL) that was analyzed using twelve (12) items taken from the works of Barling & Kelloway (2002) while lastly twenty seven (27) items of safety citizenship behavior (SCB) were based on the study done by Hofmann et.al. (1995).

Each item was measured using a Likert scale. According to Grote & Kunzler (2000), a Likert scale is the most vastly used scale in survey based quantitative researches. For this study, a seven (7) point Likert scale ranging from strongly disagree - 1, disagree - 2, somewhat disagree - 3, neutral - 4, somewhat disagree - 5, agree - 6 and strongly agree – 7 was used. According to Jingfeng Xia (2010), a seven point Likert scale would provide more meaningful information for quantitative analysis rather than lesser point Likert scales, therefore reducing the possibility of statistical breakdown of discrete values. The questionnaire was prepared

both in English and Bahasa Malaysia; because majority of the respondents were familiar with both languages. The dual language medium would also assist respondents to avoid confusion in the statement and for better judgement when responding.

3.5 List of hypotheses

Based on previous literature findings, six (6) hypotheses were developed to determine the relationship of the independent variables which are; workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) with safety citizenship behavior for this present study as follows;

H1 - Workers participation towards safety would influence safety citizenship behavior among employees in the instrumentation and service company.

H2 - Safety training would influence safety citizenship behavior among employees in the instrumentation and service company.

H3 - Perceived management commitment towards safety would influence safety citizenship behavior among employees in the instrumentation and service company.

H4 - Safety communication and feedback would influence safety citizenship behavior among employees in the instrumentation and service company.

H5 - Work pressure would influence safety citizenship behavior among employees in the instrumentation and service company.

H6 - Safety-specific transformational leadership (SSTL) would influence safety citizenship behavior among employees in the instrumentation and service company.

3.6 Research design

This descriptive research is designed to use a correlational approach in order to satisfy the objectives mentioned in Section 1.3. Segaran (2013) emphasized that a correlational approach is known to ascertain the most information regarding behavioral expectations and feelings among the employees especially in a manufacturing type of environment. According to Sekaran (2005), the dependent variable is the variable of primary interest of the study that needs to be investigated and the independent variable is the variable that influences the variable of interest. Therefore it is intended of this study to determine if the independent variables; workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) shows a direct or indirect relationship towards safety citizenship behavior in the instrumentation and service sector. The study intends to perform a series of quantitative measurements of the dependent and independent variables in order to find the most significant correlations among the mentioned independent and dependent variables, therefore increasing the possibility for the researcher to find achievable and resolute solutions towards the significance of the study outlined in Section 1.5.

3.7 Sampling procedure

Sampling is mechanism or means by which a sufficient number of factors are taken from a known population, so as that the samples selected represents the general understanding, properties and characteristics of the total population as a whole (Sekaran, 2005; Cavana, Delahaye & Sekaran, 2001). In this present study, the probability sampling method specifically the random sampling technique was used. This method was chosen mainly because; each factor or employee to be more specific would have equal amount of chance to be chosen as a sample therefore reducing the probability to create unwanted prejudice in the results. The method used is also straight forward and easy to be represented in numerical numbers in addition to being accurate enough in representing the general overall population (Zikmund et al., 2013).

3.7.1 The population of the study

The samples in this study are employees of a multinational service and instrumentation company that has local support and service offices in Malaysia and Singapore. The company is a leading global manufacturer of precision and analytical instrumentations, weighing and inspection solutions. The total population of this research is two hundred and fifty four (254) employees who are attached to various departments like service and maintenance, sales and marketing, human resources, logistics and procurement, finance, information technology, quality, business, process, regional service and support and application and development. They are divided mainly by two main levels which are management staffs and non-management staffs. Management staffs are employees that are in the position of managers, executives and office administrators. Non-management staffs are employees that are in the

position of service and sales engineers and technical specialists and report to the management staffs.

3.7.2 The sample size of the study

By referring to the sample size calculation depicted in the study of sample size formulation by Krejcie & Morgan (1970), out of the total population of two hundred and fifty (250) local employees, it was mentioned that the suggested sample size for this study to be one hundred and fifty two (152) employees. Therefore, 152 questionnaires were distributed to the respondents, collected and analyzed. The survey exercise took approximately two (2) weeks for completion.

3.8 Instrumentation and measurement

The data collection used in this study was in the form of a structured survey questionnaire (Refer to Appendix A). The questionnaire had eighty (80) points and was divided into three (3) mains sections; Section A to C. The main body statements were measured using a seven (7) point Likert scale ranging from; 1- strongly disagree to 7 - strongly agree. There were some negative statements used in the questionnaire to maintain validity of the respondents answers.

Section A consists of eleven (11) statements on employee's demographic information in addition to work related particulars like job title, gender, age, working experience from both previous and current organization, education level, marital status, personal accident experiences in the organization and safety training experiences. This response might be

crucial when evaluating and discussing the findings of this study based on the respondents feedback from the other sections.

Section B comprises of forty two (42) statements which incorporated the leadership and safety climate variables to be analyzed; workers participation, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL). The statements were placed together in this section and not separated according to each variable as to make sure the respondents answered it by their perceived views only and not by the evaluating individual elements.

Lastly, section C encompassed twenty seven (27) statements to evaluate the dimensions of safety citizenship behavior namely; stewardship, safety related helping, whistleblowing, voicing one's opinion, safety civic virtue and initiating improvements on safety in order to comprehend if the employee's do have a good relationship with the management based on trust, support and fairness that profits the company as a whole. As mentioned previously safety citizenship behavior is of the primary variable to be investigated and of interest in this study, therefore ascertaining a high scoring in this section would indicate that the respondents have a considerable amount of perceived safety attitude in the organization.

A pilot study using a hardcopy version of the questionnaire was initially performed to 20 employees to check on the questionnaire's reliability and validity which will be explained in more detail in the following Section 3.10. After the pilot study was done, the questionnaire was adapted to an online survey version form using Google Survey. Reason being; most of the employees were not available in the office due to their respective job requirements and

demands therefore it was decided by the researcher and the human resource department of the company to use an online survey version for better employee accessibility.

3.9 Research approach

The study was done using four (4) approaches. First the researcher had to obtain a written approval from the Human Resources Department (HRD) manager in order to proceed on to use the company offices and its resources. The researcher also needed to obtain another written approval from the General Manager residing in Singapore as it involved inter-office data collection; which included Malaysia and Singapore. Once the approvals were given the researcher proceeded to the next step which was briefing of the research to some of the employees. Briefing was done together with the pilot study on 20 employees in the Shah Alam, Malaysia office meeting room. The third step involved briefing the intended purpose of the research again but this time officially via email to the sample population. Data collection was done via adapting the questionnaires to a softcopy form to be sent online to the sample population. The fourth and last step was to get the responded questionnaires analyzed, interpreted and proposals forwarded to the respective management for further improvements.

3.10 Pilot study

A pilot study is a pre-measure of the consistency and reliably of the data before the main data collection procedure is commenced using data collected from a small sample compared to the sample size of the study. The pilot study focuses more on eliminating possible gaps in the instrument used for data collection by adapting a probability before the final study is done (Thabane et al., 2010). One of the advantages of doing a pilot study for the present study was to help the researcher evaluate the internal consistency and reliability first before moving on to the main data collection; therefore eliminating the possibility of the main study to achieve a low reliability thus negatively influencing the overall result of the research. The present pilot study was done using Cronbach's Alpha (α) reliability analysis method. As previously mentioned, the pilot study was conducted using a hardcopy version of the questionnaire to twenty (20) employees in the instrumentation and service company in the Malaysia office. The result of the pilot study conducted is shown in Table 3.2 below.

Table 3.2

Pilot study results for present study

Items	***Pilot study results***	
	Number of questions	*Cronbach Analysis*
Workers participation	4	0.83
Safety training	5	0.92
Management commitment	7	0.43
Communication and feedback	5	0.93
Work pressure	9	0.80
Safety-specific transformational leadership (SSTL)	12	0.76
Safety citizenship behavior (SCB)	27	0.97

3.11 Data analysis

Data was interpreted using statistical software tool which is the Statistical Package for Social Science or SSPS. The software used is the latest version available at the time this research was conducted, which is a version 23.0. The use of the SSPS version 23.0 provides a powerful mechanism in statistical analysis which is crucial for this study, as it eradicates possible errors or misinterpretations that might occur if conventional methods or means are used. It also hastens the process of ascertaining the results of the collected evidences. Four (4) types of statistical analysis approach have been defined for this study which are; reliability analysis, descriptive analysis, correlation analysis and regression analysis.

The initial step would be to analyze the collected data's accuracy using the reliability analysis. This step is the most crucial as it defines the authenticity of the results ascertained for the next analysis methods used (Sekaran, 2005). Landmann et al. (2015), Bland & Altman (1997) and DeVellis (2003) mentioned that analyzing the reliability of the collected data can determine if the methods used or if the chosen items were not suitable for assessing the theoretical aspect of the study. The most common way of analyzing reliability in social and quantitative researches is by using the Cronbach's Alpha (α) approach. This method assesses how well the measured items are positively related among each other. A Cronbach's Alpha (α) of 0.7 or greater is considered as an acceptable fit among the measured items. In other words, the closer the coefficient gets to 1.0, the higher the internal consistency and its reliability (Nunally & Bernstein, 1994). An expanded summary of the Cronbach's Alpha coefficients and its internal consistencies are shown in Table 3.3.

Table 3.3

Cronbach's Alpha measurements (Tavakol & Dennick, 2011)

Cronbach's Alpha (α)	*Internal consistency*
(α)≥ 0.9	Excellent
0.7 ≤ (α) ≤ 0.9	Good
0.6 ≤ (α) ≤ 0.7	Acceptable
0.5 ≤ (α) ≤ 0.6	Poor
(α) ≤ 0.5	Unacceptable

The second phase was to perform a descriptive analysis on the samples that are investigated in the study. Demographic information like job title, gender, age, working experience from both previous and current organization, education level, marital status, personal accident experiences in the organization and safety training experiences was measured using mean and standard deviation values to further evaluate the characteristics or a trend in the samples.

The correlation analysis approach or most commonly the Pearson correlation analysis (r) was done next to gauge the level of association between one or more variables that are investigated. The analysis will result in a coefficient correlation (r) which ranges in a number between negative(-) 1 and positive(+) 1. Simply put, this analysis measures the linearity of each variable whereby the more linear; the higher the strength and association between the variables.

Last but not least, the multiple regression analysis was done to predict the contribution of the independent variables towards the dependent variables and the overall fit between the

independent and dependent variables. This analysis would largely sum up if there is to an extend a compounding factor in addition to testing the strength and degree to which it lies between two or more dependent and independent variables.

3.12 Summary

This chapter summarizes the process used by the researcher to reach a verdict for the present study. Firstly, the theoretical framework primarily adapting and combining the works and literatures of past research studies in this field that showed the relationship between the independent and dependent variables were illustrated. The framework shows that leadership and safety climate variables have a direct influence towards safety citizenship behavior variables. Next, the conceptual and operational definitions of the dimensions of safety behavior and safety citizenship behavior, dimensions of safety climate and dimension of safety leadership particularly for this study were elaborated further for the readers to grasp a basic understanding on the theory of each independent and dependent variables and how it is measured. The measurement technique used to collect the data needed was also described followed by the six (6) hypotheses that were ascertained from previous literature reviews that are assumed to be essential to this study. A correlational approach and the probability sampling method that emphasized on a series of quantitative measurements of the dependent and independent variables were used. In addition, the researcher described detailed steps on how data collection procedures were done and the data analysis tool used to analyze the data collected. Through this method, the researcher aims to determine if the assumed hypotheses showed a positive or negative result which will be revealed in the next chapter, therefore finally expressing if the objectives detailed in the beginning of this study were met or otherwise.

CHAPTER4

FINDINGS OF THE STUDY

4.1 Introduction

The purpose of this chapter is to compile and present the findings from the data collected using the instrumentation described in section 3.8. The data will be analyzed using the Statistical Package for Social Science (SSPS) version 23.0 tool. Firstly the demographics information will be analyzed using the frequency analysis technique to gather possible trends or characteristics of the samples. Next, four (4) type of statistical analysis approach will be done using the tool to reach a conclusion from the data collected. A reliability analysis will be conducted for all the variables in this study, followed by the descriptive analysis, correlation analysis and finally using the regression analysis method. Each analysis will be scrutinized and results will be described and explained in further detail.

4.2 Response rate

The expected sample size for this study was one hundred and fifty two (152) respondents encompassing employees of the local service and instrumentation company from Malaysia and Singapore offices using an online survey approach that had a cut off period of two weeks from initialization. The online survey link was distributed accordingly to the independent departmental Business Area Managers (BAM) and Country Managers (CM) to be disseminated to their subordinates. After the cut off period, one hundred and fifty one (151) completed questionnaire responses were ascertained. Table 4.1 summarizes the response rate of the survey done.

Table 4.1

Response rate

Items	*Total*	*Percentage (%)*
Distributed Questionnaires	152	100.0
Collected Questionnaires	151	99.3
Unreturned Questionnaires	1	0.7
Completed Questionnaires	151	99.3

4.3 Respondents demographic background

The respondents' demographic profiles are described in Table 4.2 below:

Table 4.2

Demographic characteristics of the respondents

Demographics	Frequency	Percentage(%)
Job Title		
Executive	26	17.2
Manager	34	22.5
Sales engineer	32	21.2
Service engineer	30	19.9
Technical specialist	29	19.2
Gender		
Female	61	40.4
Male	90	59.6
Age		
21 - 30 years	27	17.9
31 - 40 years	86	57.0
41 - 50years	34	22.5
51 - 60 years	4	2.6
Total work experience		
0 - 5 years	16	10.6
6 - 10 years	30	19.9
11 - 15 years	59	39.1
16 years and above	46	30.5

Demographic characteristics of the respondents (continued)

Present work experience		
0 - 5 years	71	47.0
6 - 10 years	61	40.4
11 - 15 years	14	9.3
16 years and above	5	3.3
Education level		
Degree	125	82.8
Diploma	12	7.9
Master	11	7.3
Secondary school	3	2.0
Marital status		
Married	124	82.1
Single	27	17.9
History of occupational accidents		
No	145	96.0
Yes	6	4.0
Frequency of occupational accidents (if yes)		
Never	145	96.0
1 - 3 times	6	4.0
Safety training record		
No	32	21.2
Yes	119	78.8
Frequency of safety training (if yes)		
Not at all	36	23.8
Once a year	105	69.5
Once in six months	1	0.7
Once in three months	9	6.0

The majority of the respondents that replied the survey questionnaire held managerial positions which formed the largest part of the job title quadrant at 34 respondents (22.5%). Sales engineers were the second largest at 32 respondents (21.2%) followed by service engineers at 30 respondents at 19.9%. Technical specialists and executives formed 19.2% and 17.2% respectively. The results indicate that the perceptions are somewhat evenly collected from the sample size across the job boards in the company and not inclined to only specific employees in certain job roles.

Male respondents constituted 59.6% at 90 respondents while female respondents were at 61 respondents at 40.4%. Male employees in the service and instrumentation company are more likely to handle heavier and riskier job tasks like service and installations, therefore contributing better to the study based on their on the job experiences in retrospect to others or specifically female employees who cater more on management based jobs in the company.

In terms of age threshold, 86 respondents were in the age range of 31 to 40 years which accumulated to the highest 57% of the sample size, while the second highest were employees in the age range of 41 to 50 years amounting to 34 respondents (22.5%) followed by 27 respondents from the younger 21 to 30 years age ranges at 17.9%. Only 4 respondents accounted for the smallest age group from 51 to 60 years at 2.6%. These employees are quite likely staffs that are retained in the company due to their technical expertise and knowledge towards the business and industry.

The largest group of 59 respondents (39.1%) boasts of employees that have had a total work experience from 11 to 15 years. This was followed by 46 staffs who had been working for 16 years or more at 30.5%, 6 to 10 years at 19.9% and younger staffs from new hire to 5 years at 10.6%. However, most the respondents were from employees who had been with the company for only 5 years or less which amounted to 71 respondents or 47% of the total response rate. Sixty one (61) respondents had been with the company from 6 to 10 years at 40.4%, while 14 and 5 respondents added up the remaining 14% (11-15years) and 5% (16 years and above) respectively. As such, the response will quite likely be populated with the perception of employees who have had a minimum total work experience of 11 years but less than 5 years of exposure to the company. As many employees are from similar work backgrounds before, it is quite likely that the respondents would be able to give a better judgement of the status of safety and health aspects comparing previous job environments and the present company that they are in.

The respondents are mostly married staffs at 124 respondents (82.1%) while singles at only 27 respondents (17.9%). In terms of education level, predominantly most employees have bachelor degrees (82.8%), while other education levels were fair among the employees with diploma level at 7.9%, master level at 7.3%, while 3 respondents finished only up till secondary school at 2%. Therefore, it can be said that the employees are mostly well educated and able to construe the survey questionnaire sent to them correctly while negating possible outliers from the response.

From the perspective of occupational accidents, fortunately 145 respondents (96%) did not have any occurrences to date; however 6 respondents (4%) have had some form of occupational accident experience but with only 3 occurrences or less during their overall working experience.

There was a good indication of employees being exposed to safety and health as 119 respondents (78.8%) mentioned having some sort of occupational safety training during their working period while 32 respondents (21.2%) indicated they did not have any form of basic safety training. Employees exposed to safety training mentioned, having trainings on a yearly basis which accounted to the largest quadrant of safety training frequency at 105 respondents (69.5%). The second largest quadrant however indicated that mostly did not have a follow up training at all, which accounted to 36 respondents at 23.8%. Nine respondents mentioned having safety training follow ups once in three months while only one respondent mentioned having safety training once every six months.

4.4 Reliability analysis

The aim of reliability analysis is to get the coefficient of the variables to be closer to 1.0, which in turn suggests that there is higher internal consistency and reliability (Nunally & Bernstein, 1994). A Cronbach's Alpha (α) of 0.7 or greater is considered as an acceptable fit among the measured items. Table 4.3 gives a summary of the reliability of the measured variables in determining the level of safety behavior among the employees of the service and instrumentation company. As shown below, safety training and safety citizenship behavior both shared the highest Cronbach's Alpha (α) coefficient at 0.93. These results shows a positive inclination towards making sure that a constructive result can therefore be

ascertained in line with the goal of this study which is to understand the level of safety citizenship behavior in the service and instrumentation company.

Safety-specific transformational leadership (SSTL), communication and feedback, workers participation and work pressure in short achieved a good fit of over 0.7. However, management commitment towards safety which suffered an unacceptable fit of 0.43 with 7 items initially was improved to an acceptable fit of 0.69 with reduced 6 items.

Table 4.3

Reliability analysis before and after items deleted

Items	*Number of initial questions*	*Cronbach Analysis*	*Number of final questions*	*Cronbach Analysis*
Workers participation	4	0.83	4	0.72
Safety training	5	0.92	5	0.93
Management commitment towards safety	7	0.43	6	0.69
Communication and feedback	5	0.93	5	0.74
Work pressure	9	0.80	9	0.71
Safety-specific transformational leadership (SSTL)	12	0.76	12	0.79
Safety citizenship behavior (SCB)	27	0.97	27	0.93
Total	**69**		**68**	

4.5 Descriptive analysis

The descriptive analysis is used to evaluate the characteristics and trends of the independent and dependent variables. The mean value and standard deviation (SD) was ascertained in this analysis. The mean value describes the average and central tendency of all values in the given data set whereas the standard deviation describes the general disposition or spread of the values. The variables were measured using a 7 point Likert scale ranging from 1- strongly disagree to 7- strongly agree. Table 4.4 summarizes the mean and standard deviation (SD) values.

Table 4.4

Descriptive analysis of main variables

Variables	Mean	Standard Deviation(SD)	N
Workers participation	4.91	0.85	151
Safety training	4.33	1.20	151
Management commitment towards safety	5.03	0.73	151
Communication and feedback	4.52	1.10	151
Work pressure	5.17	0.76	151
Safety-specific transformational leadership (SSTL)	5.34	0.60	151
Safety citizenship behavior (SCB)	5.17	0.88	151

From the table shown, the mean values indicate in general, most respondents have given their responses in the range of 4 - neutral to 6 - agree. More importantly, the standard deviation (SD) points towards the response spread of the respondents. From a hierarchical point of view of response rate from the largest to least spread of response; safety training showed the

largest spread of response with a SD value of 1.20 indicating that safety training had mixed perceptions from the respondents, and that safety training maybe only department or job specific. Communication and feedback was next in line with a SD of 1.10, safety citizenship behavior had a SD of 0.88; followed by workers participation (SD = 0.85), work pressure (SD = 0.76) and management commitment towards safety (SD= 0.73). The results showed that safety- specific transformational leadership (SSTL) has the least SD value of 0.60 which indicates that the response spread is closer to the mean value of that variable; therefore giving the perception that the response for the items evaluating SSTL towards safety citizenship behavior among the workers in the company were more unified and evident.

4.6 Correlation analysis

As mentioned previously, the Pearson correlation analysis (r) is used to find the level of association between one or more variables being investigated. The results of these coefficients indicate the strength and association between the six independent variables; workers participation, safety training, perceived management commitment towards safety, communication and feedback, work pressure and safety – specific transformational leadership (SSTL) and the dependent variable, safety citizenship behavior (SCB). Table 4.5 below summarizes the results based on the deduced data from the analysis.

All relationships between the six mentioned variables towards safety citizenship behavior are significant with $p < 0.01$ except for the variable, perceived management commitment towards safety which had a p level of > 0.01. All variables also exerted positive correlations. Work pressure showed the strongest correlation with the highest value ($r = 0.552$, $p < 0.01$). Safety training observed a moderate correlation with $r = 0.344$, $p < 0.01$, followed by the remaining variables; communication and feedback, ($r = 0.296$, $p < 0.01$), safety – specific transformational leadership (SSTL), ($r = 0.285$, $p < 0.01$), workers participation ($r = 0.219$, $p < 0.01$) and finally perceived management commitment to safety ($r = 0.121$, $p > 0.01$) showing fairly weak correlations respectively to safety citizenship behavior (SCB).

Table 4.5

Pearson correlation analysis

		Safety - specific transformational leadership (SSTL)	Workers Participation	Safety training	Management commitment towards safety	Communication and feedback	Work pressure	Safety citizenship behavior (SCB)
Safety - specific transformational leadership (SSTL)	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	151						
Workers Participation	Pearson Correlation	.008	1					
	Sig. (2-tailed)	.925						
	N	151	151					
Safety training	Pearson Correlation	.075	.378**	1				
	Sig. (2-tailed)	.363	.000					
	N	151	151	151				
Management commitment towards safety	Pearson Correlation	.115	.148	.200*	1			
	Sig. (2-tailed)	.161	.070	.014				
	N	151	151	151	151			
Communication and feedback	Pearson Correlation	.039	.144	.133	.204*	1		
	Sig. (2-tailed)	.638	.077	.102	.012			
	N	151	151	151	151	151		
Work pressure	Pearson Correlation	.203*	.033	.197*	.100	.137	1	
	Sig. (2-tailed)	.012	.690	.015	.222	.093		
	N	151	151	151	151	151	151	
Safety citizenship behavior (SCB)	Pearson Correlation	.285**	.219**	.344**	.121	.296**	.552**	1
	Sig. (2-tailed)	.000	.007	.000	.140	.000	.000	
	N	151	151	151	151	151	151	151

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

4.7 Hypotheses testing

The multiple regression analysis was used to analyse the relationship between the six variables; workers participation, safety training, perceived management commitment towards safety, communication and feedback, work pressure and safety-specific transformational leadership (SSTL) and the dependent variable, safety citizenship behavior (SCB) among the employees of the instrumentation and service company investigated. The results of this analysis would also be able to then validate the six (6) hypotheses that were identified during the beginning of this study.

Table 4.6

Model summary A

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.664[a]	.441	.418	.604

a. Predictors: (Constant), Work pressure, Workers participation, Management commitment, Safety - specific transformational leadership (SSTL), Communication and feedback, Safety training

According to Table 4.6, all the independent variables have a moderately significant prediction towards safety citizenship behavior. This can be seen as the R value is at 0.644 which is almost more than half the value of the ideal value at 1. Meanwhile the R^2 value is at 0.441. The value indicates that 44.1 percent of the variation depicted in safety citizenship behavior (SCB) was explained by the combination of workers participation, safety training, perceived management commitment towards safety, work pressure and safety - specific transformational leadership (SSTL) while 55.9 percent were explained by other variables.

Table 4.7

Regression analysis of Safety-specific transformational leadership (SSTL), Workers participation, Safety training, Management commitment, Communication and feedback and Work pressure

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.308	.646		-.477	.634
Safety - specific transformational leadership (SSTL)	.249	.091	.175	2.737	.007
Workers participation	.098	.059	.112	1.655	.100
Safety training	.120	.046	.181	2.605	.010
Management commitment	-.040	.071	-.037	-.572	.568
Communication and feedback	.142	.047	.194	3.008	.003
Work pressure	.516	.074	.455	6.964	.000

Note:
F Value: 18.937 at $p < 0.05$

Independent/constant variables: Safety-specific transformational leadership (SSTL), Workers participation, Safety training, Management commitment, Communication and feedback and Work pressure

Dependent variable : Safety citizenship behavior

In Table 4.7, the F value is at 18.937 with $p < 0.05$, indicating that the regression model is showing a substantial good fit. In terms of variables, data was extrapolated using the standard coefficients beta and t-value. Any t-values exceeding 1.645 and lower than 2.33 is significant at a $p < 0.05$ level while any values exceeding 2.33 is significant at a $p < 0.01$ level.

The results indicated that there is a significant positive relationship at a $p < 0.01$ level between safety- specific transformational leadership ($\beta = 0.175$, $t = 2.737$), safety training ($\beta = 0.181$, $t = 2.605$), safety communication and feedback ($\beta = 0.194$, $t = 3.008$), work pressure ($\beta = 0.455$, $t = 6.964$) and safety citizenship behavior. The relationship between workers participation and safety citizenship behavior is seen to be significant at a $p < 0.05$ level with ($\beta = 0.112$, $t = 1.655$).

This brings to attention that hypotheses; H1 (Workers participation towards safety would influence safety citizenship behavior among employees in the instrumentation and service company), H2 (Safety training would influence safety citizenship behavior among employees in the instrumentation and service company), H4 (Safety communication and feedback would influence safety citizenship behavior among employees in the instrumentation and service company), H5 (Work pressure would influence safety citizenship behavior among employees in the instrumentation and service company) and H6 (Safety-specific transformational leadership would influence safety citizenship behavior among employees in the instrumentation and service company) are supported.

Unfortunately, management commitment towards safety suffered a negative relationship towards safety citizenship behavior with a beta (β) result of negative(-) 0.037, t- value of negative (-) 0.572 and a significance level of 0.568 ($p > 0.05$); therefore hypothesis H3 (Perceived management commitment towards safety would influence safety citizenship behavior among employees in the instrumentation and service company) is not supported.

4.7.1 Hypotheses results

Table 4.8 summaries the concluded hypotheses results based on the regression analysis done.

Table 4.8

Hypotheses results

Hypotheses	***Result***
H1 - Workers participation towards safety would influence safety citizenship behavior among employees in the instrumentation and service company	Supported
H2 - Safety training would influence safety citizenship behavior among employees in the instrumentation and service company	Supported
H3 - Perceived management commitment towards safety would influence safety citizenship behavior among employees in the instrumentation and service company	**Not supported**
H4 - Safety communication and feedback would influence safety citizenship behavior among employees in the instrumentation and service company	Supported
H5 - Work pressure would influence safety citizenship behavior among employees in the instrumentation and service company	Supported
H6 - Safety-specific transformational leadership (SSTL) would influence safety citizenship behavior among employees in the instrumentation and service company	Supported

4.8 Summary

This chapter summaries the findings of the study based on the research approach and data analysis described in Chapter 3. The response rate exceeded expectations with 151 employees responded out of the total 152 questionnaires sent. Based on the demographic profiles, the respondents were mostly male from 31 to 40 years of age with a total work experience ranging from 11 to 15 years, while only being in the company within duration of 5 years and less. The respondents were mostly well-educated to a bachelor degree level with an indication of having some form of occupational safety training in their working life. All variables had a comparatively good reliability fit, albeit safety training exerted a larger spread of response from the respondents descriptively. In terms of correlation, all variables except for perceived management commitment towards safety exerted positive correlations. Lastly in terms of regression analysis, one (1) out of the six (6) hypotheses; H3 (perceived management commitment towards safety influences safety citizenship behavior among employees in the instrumentation and service company) was not supported. The focuses on the discussions of the findings, theoretical and practical implications, and limitations experienced in the present study and suggestions for future researches will be discussed further in the next chapter.

CHAPTER5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter is intended to discuss on the results that were obtained and concluded in the previous chapter which examines the relationship between workers participation towards safety, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) towards safety citizenship behavior among the employees of the service and instrumentation company that was picked for this study. The next phase would be to include the implications of the present study followed by suggesting logical actions and approaches that can be undertaken with hopes to improve the safety compliance and safety citizenship behavior among the employees. Although the present study is researched quantitatively, there are still limitations that might have influenced the results of this study; therefore needed to be highlighted and brought to attention which may directly or indirectly assist future research studies conducted. Alas, a conclusion will be ascertained and provided in this chapter.

5.2 Discussion

This section will elaborate further on the results reached in this study with respect to workers participation towards safety, safety training, perceived management commitment towards safety, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) towards safety citizenship behavior (SCB) in the instrumentation and service company.

This section also aims to draw a final conclusion based on the results of this study and with the hypotheses developed on the theories and previous empirical evidences that were mentioned.

5.2.1 Workers participation towards safety and safety citizenship behavior

The results have indicated that there is a positive and moderately significant relationship between workers participation towards safety and safety citizenship behavior among the employees in the service and instrumentation company. The present finding corroborates with previous researches done by Vinodkumar & Bhasi (2010) and Segaran (2013) in industrial hazardous and steel manufacturing plants respectively that stated, workers engagement in health and safety aspects did affect safety attitudes and ethics and improved general perceptions of the employees to be more vigilant towards health and safety issues in the organization. There are several assumptions as to why there is a moderately significant relationship between workers participation towards safety and safety citizenship behavior in the organization in this present study.

Firstly, the service and instrumentation company entrusts its workers to be more proactive by implementing an "open door" policy concept where general staffs can engage freely and communicate with upper management with regards to their daily jobs. With that being said, safety and health aspects are also not negated with this motion. Workers involvement is crucial in cultivating a positive mindset with hopes to reduce mishaps in the organization (Hong, Surienty & Hung, 2011).

There is also a growing effort with regional and back office initiatives to improve on safety and health aspects within the local offices. Certain departments have now taken steps to get service specialists and engineers to report on any issues or problems including safety and health aspects in job tasks, be it; basic troubleshooting or installations and setup of machines on other work sites. This must be reported in the service report prepared after every job tasks done. Procedures and guidelines have been setup and being improved regularly on basic safety and health checks to be done on machines to make sure that hazards and risks are kept as minimal as possible before the machines are even operated. Blair & Geller (2000) mentioned that employer should take responsibility in making sure that the workplace is with less hazards and risks present at the workplace and the duty lies in the establishment of rules, guidelines and procedures which needs to be improved regularly. Therefore, with this set in motion, it needs to be fully implemented to all departments in order to make sure standardization is undertaken for all employees at the workplace regardless of duties or responsibilities.

With that being said, workers participation can be further improved thus improving safety citizenship behavior if employees are given the opportunity in enhancing safety and health aspects (Fuller, 1999). Vredenburgh (2002) and Cohen & Cleveland (1979) mentioned that by giving staffs the accountability and responsibility in safety and health initiatives, employees are the best individuals in personifying organizational decisions which in turn affects overall safety behavior among the employees. For example, management can allocate accident investigations, job safety analysis and hazard identifications, risk analysis and risk controls to the staffs in order to enhance the efforts by management in order to enforce safety and health aspects in the company (Punnet et al., 2009; Cox & Cheyne, 2000; Dedobbeleer and Beland, 1991; Lee, 1998; Shannon et al., 1996).

5.2.2 Safety training and safety citizenship behavior

The second hypothesis revealed that there is a significant positive relationship between safety training and safety citizenship behavior in the company. This result is in line with previous empirical research findings by Lu & Yang (2010), Vinodkumar & Bhasi (2010) and Komaki, Heinzman, & Wyld (1980) who have all concluded that safety training had the most prominent impact towards behavioral changes among workers. There could be a few reasons behind this.

Firstly, the company does have adequate training programs done during the early stages of employment for its workers. This can be seen with orientations and trainings done for new hires for the company. Trainings are done in line with efforts by the Human Resources Department (HRD) of any company in making sure that employees are molded towards the company's visions and missions (Lauver, 2007; Hughes & Ferrett, 2005; DeJoy et al., 2000;

Zohar, 2002). With these training programs, basic safety and health guidelines and awareness are empowered to new employees with means of working more efficiently to understand the hazards and risks in their working environment (Law, Chan & Pun, 2006; Smith et al., 1978; Marsh et al., 1998).

Secondly, the company also had previous records of holding basic emergency drills and basic fire safety trainings from the Fire and Emergency Department of Malaysia (BOMBA) therefore intensifying the employee's understanding towards hazards and risks that may lurk in their working environment. As mentioned by Lois et al. (2004) and Harshbarger & Rose (1991), adequate safety training is crucial when it comes to the staffs' preparedness in handling real emergency cases and situations in addition to reducing liability costs due to accidents, claims and machinery damages. With new employees and changes in working environments, office designs and product line ups of the company, safety drills and emergency preparedness should be seen as a more frequent exercise to be done in future in the company.

Thirdly, it is known that the company is also making sure that safety and health is practiced as a crucial element in each department as well. Service trainings via operational and technical manuals, guidelines and service videos are started off with a brief introduction of safety notice and general safety awareness. The safety notice is specific to each department and may vary in contents of safety procedures. Therefore, there could be variations in terms of safety and health emphasis. This was obvious especially in the descriptive analysis phase where the results indicated there was a large spread of response among the employees in terms of safety training. Roughton (1993) emphasized that safety trainings should be implemented via a practicable and systematic approach that takes into account a direct, well

documented training plan to help the employees in terms of re- training as an effort to have a continuous impact in personal safety behavior among the workers. The company invests much on electronic learning methods and classroom trainings in making sure the competency levels of its employees are maintained in terms of business, therefore it could be seen as an opportunity to incorporate safety and health initiatives as well into this training scheme to strengthen and improve safety citizenship behaviors among the workers.

Last but not least, almost one third of the respondents had been involved or attended some form of safety and health trainings during their working tenure, therefore it could be that most employees do already have the basic understanding of safety and health aspects in a working environment. Workers skills are essential to identify shortfalls and resolving problems in making sure that the working environment is a safe as possible (Pfeffer & Veiga, 1999; DeJoy et al., 2000; Harvey et al., 2001; Zohar, 2002; Azimah et al., 2009). According to Smith et al. (1978) and Mashi (2014), organizations that want to reduce mishaps and accidents should look into investing more time and effort in making sure a good substantial safety training program is made, therefore enhancing the possibility not only to give a clear indication of existing hazards, but also a way of employees to even predict other possible hazards that may occur at the workplace. With this, the company can look into the possibility of having interdepartmental drives where employees can offer their observations peer to peer training with hopes of improving more the work space or even how work in done in a safer and more efficient manner. These efforts can really essential especially to make safety and health trainings that are most suited to the organization; therefore expediting the competency levels with regards to safety and health aspects among the employees.

5.2.3 Perceived management commitment towards safety and safety citizenship behavior

In the beginning of this study, it was the intention to evaluate the company's management efforts and to see if it influences the workers attitudes towards safety. According to the results derived, the hypothesis; *"Perceived management commitment towards safety would influence safety citizenship behavior among employees in the instrumentation and service company"* was negated. Not only did it show a negative correlation, it also was not significant towards safety citizenship behavior.

The result of the present study was not in lieu with other empirical findings that were mentioned. Many researches have concluded the management's involvement had a significant impact towards safety compliance and behavioral changes among its workers. Past research findings have concluded that management's involvement indicated a high significance towards safety compliance among the workers. Management commitment has also been widely recognized to positively influence a balanced safe and healthy workplace in most organizations especially in high risk industries, in turn drastically reducing the number of mishaps and accidents at the workplace (Vinodkumar & Bhasi, 2010; Fernández-Muñiz et al., 2012; Fernando et al., 2008; Cox & Cheyne, 2000; Al-Refaie, 2013; Fruhen et al., 2013; Hofmann & Morgeson, 1999; Hofmann & Stetzer, 1996; Michael et al., 2005)

Although most researches have backed on the significance of management commitment, there have been instances which have stated otherwise as well. According to a study done by Michael et al. (2005) on safety behavioral outcomes among employees in the wood processing industry, it was mentioned that management commitment had a joint relationship with employee job satisfaction and job performance with regards to safety and health aspects,

therefore it may result in negative correlations to safety behavior with low job satisfaction or job performance towards safety.

There could be a couple of reasons as to why perceived management commitment towards safety citizenship behavior was not significant. Firstly, past researches have conducted their studies on employees that are based on-site. The research done on manufacturing and other high risk industries such as the chemical or oil and gas industries are focused on employees that perform jobs at their regular workplace.

The organizational structure of the present company investigated is however not that straight forward. The company's employees are not only based in the local offices, but also travel frequently at multiple job sites. The local offices comprises of a localized service and support center as well as a regional office team. Local service and support employees are bound to the local management of the company. For the regional team; some of the employees are bound to organizations in another country. There is an organizational distance from the employee to the management. They only represent the organization in the local offices. For instance, a regional service and support product specialist of the company is hired locally, however he or she reports to the management in the United Kingdom. The job descriptions, tasks, job related updates and reports are passed down from the management in the United Kingdom. Various other regional employees report to other organizations for example; from Switzerland and the United States. Therefore in short, although there is somewhat a general management that encompasses all the employees in the company, each employee would have different managements to report to. Radical management changes and hierarchical distances between staffs and management in efforts of globalization would result in different reactions or responses among the employees (Hill et al., 2011).

Mearns & Yule (2009) performed a study on cross cultural differences and management commitment towards safety attitudes in a multinational oil and gas engineering organization that operated in six different countries. The researcher concluded that there were no distinctive relations between cultural differences and beliefs between workers towards safety attitudes; rather it was the uniformity of management practices on a global scale that played a part in determining the consistency of the workforces' behavior. This could have led to some form of ambiguity especially to some of the employees over perceived management commitment in the present organization investigated.

Secondly, the company does not have an actual safety and health committee to take on safety related issues. According to Mat Zin and Ismail (2011), a proper constituted joint safety and health committee at site or departmental level can drive the proper accountabilities set forth to the respective managers in the organization, and instilling relationships between safety and health representatives and safety and health practitioners. The functions of safety committee; among others can be as a point of contact for proper accidental investigations, near misses, reporting and monitoring, and training.

As such, safety and health committees should be set as an independent body directly under the purview of top management within the company and not bound by another department so to speak. This entrusts the strong commitment set; therefore, perceptions of employees can be improved towards efforts done in the organization (Jaselski et al., 1996). With different organizational layouts and also the absence of a proper governing body such as a safety and health committee, it could be summed up as a trickled down effect with the company. Being in the service and instrumentation field for a long time, there could have been some mishaps

or minor accidents experienced by some of the employees that may have gone unreported or not investigated properly by the management.

5.2.4 Safety communication and feedback and safety citizenship behavior

Safety communication and feedback exerted a significant relationship towards safety citizenship behavior in the present study thus supporting the third hypothesis in question. The result supports claims that have been mentioned in other empirical studies performed by Alsamadani et al. (2013), Hofmann & Morgeson (1999), Mearns, Whitaker & Flin (2003), Stave et al. (2008), Varonen & Mattila (2000), Zeitoun (2014), Clarke (2006) and Sampson et al. (2014) that workers who often showed a higher level of bidirectional communication on safety aspects portrayed a higher level of safety attitudes and safety behavioral acceptance within the organization.

The results have also indicated the although there are some employees in the company that are stationed in multiple job sites, the level of communication and feedback in terms of safety can still be achieved. The service and instrumentation company upholds its working ethics on promoting an "open door policy" system, where any employee or member of staff in the organization can interact within means with their superiors or immediate managers in their respective departments. There is no limitation towards the level of communication and feedback for that matter. Suggestions and feedbacks are done via formal electronic means such as email or even sometimes using social media applications. Håvold & Nesset (2008) mentioned that organizations should provide and effective platform to make sure that safety communication and feedback is done in an effective and progressive manner. The company also promotes employees to communicate face to face via one to one meetings between the

employee and his or her manager. As mentioned by Azimah et al. (2009) and Neal & Griffin (2002), the success of safety communication and feedback lies in its methods, frequency and the openness in its communication. As such, safety and health issues brought up could be taken up and resolved within the departments effectively. Therefore, this could be one of the reasons as to why safety communication and feedback showed a significant level or relationship towards safety citizenship behavior.

However, there is still room for improvements. According to Chong, Ramayah & Subramaniam (2016), safety communication and feedback can improve and rectify existing issues within their daily job scope. By implementing more avenues for the employee to participate in bidirectional communication between workers and the management, it can promote self- learning capabilities from previous mishaps in the past (Mearns et al., 2003).

The company is already making efforts in introducing self-learning service videos working hand in hand with a local video and training company. The purpose is to make sure that the staffs can easily stream or download these videos to be used during support or service related tasks and move away from reading traditional hardcopy manuals and service guides.

A good venture would be then to promote safety and health aspects visually using this local video and training company to create health and safety related videos in order to further improve communication and feedback between management and the employees. It will also be fruitful to use other technological means such as online surveys, intranet SharePoint, online statistics reports or even printing safety and health agendas and awareness done and to be done in the company's annual reports.

5.2.5 Work pressure and safety citizenship behavior

The present study found that work pressure exerted the highest significance of relationship with regards to influencing safety citizenship behavior in the present company, therefore fully supporting the hypothesis mentioned. The present result is directly aligned with many other research findings to have also shown that eustress rather than distress (Hilton & Whiteford, 2010; Trimpop et al., 2010; Clissold, 2005) will influence individual safety behavior in the organization.

However, taking into account the claim by Glendon & Litherland (2001), who studied safety climate effects especially for the construction and maintenance workers in Australia, mentioned that work pressure was infused into the workers' daily job and did not significantly impact behavioral changes at the time. There may be several differences in the nature of business and work environment of the present company that may have a hand in this result.

In the present company the jobs are staggered. There are enough staffs to manage the workload and the company is willing to make sure that the workers have the relevant resources, means, access and systems in order to complete the job tasks efficiently, thus creating a lesser stressful environment. Although there are times when certain jobs require immediate attention and needed to be completed as soon as possible, however these situations do not happen all the time. In recent months there had been a lot of changes to the work areas as well. The offices of certain crucial departments have been moved to be accommodated into bigger areas. Ventilation, lighting and air conditioning had been upgraded. Walls of the offices have been painted with the designated company's approved color combinations. Plants and foliage have been placed nearby office worker's cubicles, entrances and also pantry areas

to improve air circulation while giving a more radiant and harmonious look. Kirkcaldy et al. (1999) and Norris et al. (2000) added that general atmosphere at the workplace did have a direct affect towards positive or negative changes towards workers' behaviors.

Since the local offices do not directly deal with manufacturing that mainly focuses on production throughputs and is purely service and support based, the employees are not bound to strict work timings. Studies conducted by (Wagenaar & Groeneweg, 1987; Lawton, 1998; Wright, 1986; Hofmann et al., 1995) found that time pressure significantly influenced production demands which pushed workers to perform many short cuts that influenced safety process; thus leading to accidents. Although in the employees job descriptions and offer, mentioned that the standard work time is from 8.30am till 5.30pm, the worktime is flexible depending on the job and tasks. Employees who are stationed in the office are expected to finish their job on time; however if needed, are also able to work from home. This gives more freedom to the employees to finish their work in a timely fashion without the influence of high stress. According to James & Arroba (1999) and Jex & Beehr (1991), long work hours, high work expectations and top management demands usually is the key to high work pressure among employees that will negatively impact the employees' behavior.

5.2.6 Safety– specific transformational leadership (SSTL) and safety citizenship behavior

The final hypothesis, *"Safety-specific transformational leadership (SSTL) would influence safety citizenship behavior among employees in the instrumentation and service company"* is fully supported with a positive significance in the present study. The result concurs with other past results ascertained by Mullen, Kelloway, & Teed (2011) and Smith, Eldridge, & Dejoy (2016) who all have mentioned that SSTL have significantly predicted safety citizenship behavior in addition to heightening the sense and attitudes of the workers compared to other leadership styles (Koster, Stam & Balk, 2011; Barling, Loughlin, & Kelloway, 2002; Kelloway, Mullen, & Francis, 2006; Barling et al., 2002; Clarke, 2013; Kelloway et al., 2006; Mullen et al., 2011). It also supported the findings by Khan et al. (2014) and Smith et al. (2016) who concluded that safety specific transformational type of leadership positively affected safety ethics among the workers; negating passive leadership styles.

The most obvious reasons as to this outcome would be the number of leaders and their values that are present in the company investigated. The majority of the respondents were managers. In this company, supervisors and leaders are often given opportunities to attend seminars and trainings to enhance their managerial competencies and capabilities. The elements of leadership styles, most likely transformational leadership qualities could be one of the more training purposes and target. Therefore, it could be an undeniable fact that the managers were given the proper technique and know how to impart their knowledge and leadership qualities to other employees or subordinates within their purview. Kuhnert & Lewis (1987), Lu & Yang (2010) and Yuki (2006) mentioned that transformational leaders who are focused on safety portray certain confidence levels to other workers; therefore changing their perceptions

which in turn results in a high level of positive interactions and participations among the employees (Christian, Bradley, Wallace, & Burke, 2009; Jiang & Probst, 2016; Clark, 2013).

Another possible reason would be the experience of the leaders itself. Most of the respondents had over 10 years of experience. Their past experiences with regards to some safety and health matters coupled with their job positions could have played a role in the results. Mullen et al. (2011) reiterated that experienced leaders tend to provide guidance to their fellow subordinates thus encourage employees to take efforts to promote safety and health at the workplace. Past experiences on safety matters mixed with transformational leadership skills focuses more on the tactics and know-how by as a top down approach in order to promote better occupational safety (Barling et al., 2002).

5.3 Implications

This section provides the implications from the outcome of this present study both in a theoretical and practical standpoint.

5.3.1 Theoretical implications

This study aims to draw educated results based on the findings. The extension of safety behavior towards safety citizenship behavior broadens the elements of safety behavior to include other humanized facets which include safety stewardship or authority, safety helping, reporting of safety violations, voicing opinions, self- pursuance of keeping oneself informed, and initiating suggestions and improvements in safety and health matters in the organization.

In short, this study has found that five (5) out of the six (6) variables hypothesized in the beginning of the study which are; workers participation, safety training, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) is crucial in improving the level of safety citizenship behavior (SCB) among the staffs within the service and instrumentation company. As such, the organization can use these evidence and findings to tailor their efforts within these five (5) "realms" or elements in order to achieve a more successful behavioral pattern among employees within the company, thus achieving a more rationalized synchronization between the employees and the management based on trust, support and fairness towards positive behaviors that profits the company collectively (Hofmann, Morgeson & Gerras, 2003; Zohar, 2007).

This study also aims to represent the findings in a more regional perspective to be used by other local or foreign researchers present or in the future that may want to investigate in efforts of improving safety behavior and safety citizenship behavior among employees in other similar service and instrumentation related organizations, taking into account additional probabilities that exists in most Asia-Pacific developing countries such as; ethnic and religious beliefs, traditions and social statures which may influence the level of acceptance towards behavioral changes in the workforce compared to other employees in likely organizations in developed nations that are governed more by stricter occupational health and safety legislations (Selvarajah & Meyer, 2008; Houtman et al., 2007; Rahim et al., 2014).

5.3.2 Practical implications

Every organizational goal is to keep improving in terms of business capabilities and ventures. This section brings forth some suggestions and improvements that can be undertaken in order to enhance the citizenship based values and attitudes among the workers in the present organization. Finding and results in this study had already demonstrated that workers participation, safety training, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) exerts positive influences towards safety citizenship behavior within the service and instrumentation company investigated.

Workers participation is a way of giving an opportunity to the employees to act decisively (Kaler, 1999) while entrusting them to work hand in hand with management in order to improve safety and health aspects in the organization (Mashi, 2014). In Malaysia, the Occupational Safety and Health Act (OSHA) 1994 have specific bylaws that mentioned workers to be involved in safety committee initiatives in the organizations (OSHA Act,

1994). Therefore the service and instrumentation company should look into the possibility of creating a localized safety and health committee that is independent from being facilitated by the Human Resources Department (HRD). The HRD may not have the ability to be fully aware or in a position to act swiftly on safety and health matters within the company; more importantly in case of emergencies or accidents that require fast actions, therefore having a safety committee can be more meaningful to strive and to focus on specific safety and health efforts that have been void or lessened in the company in previous years. Workers who are very much involved in safety committees portray a better safety attitude therefore drastically decreasing potential accidents (Dillard, 1997; Walters & Nichols, 2006). As such giving employees the ability to be a part of the company's efforts and decision makings promote safety stewardship within the employees. The localized safety and health committee should be governed by the top management under its wing. This will create a more structured platform to maintain a safer working environment at the workplace (Fuller, 1999).

The second finding in this study is safety training. A proper training plan is essential in making sure that safety and health efforts are well prepared and implemented. It is also important as it enables the employees to understand the legal requirements in occupational safety in Malaysia as well as the proper implementations in a systematic, approachable manner (Roughton, 1993).

In the present company, safety and health is only briefly highlighted pertaining to the hazards and risks in dealing with the specific products' operations, servicing and troubleshooting engagements by the employees via manuals and guidelines albeit having electronic methods and means in addition to classroom trainings to cater to improve product knowledge and solutions. Therefore, the organization can take this opportunity; by already having a proper

competency based training structure and incorporating safety and health aspects for its employees. Smith et al. (1978) and Mashi (2014) mentioned that there should be a substantial amount of training programs suited to the employees to make sure that they fully understand each risks and hazards that are present at the workplace.

Safety and health trainings can be accommodated by in-house trainers or by engaging registered safety and health practitioners. For example, safety ergonomics, emergency response, psychosocial management, behavioral aspects in safety, industrial hygiene and emergency response management to name a few, can be implemented via classroom trainings or even via e-learning approach office wide. Chemical management can be more specific to the employees in the laboratory division and safety management can be stressed more for warehouse handling operations. By giving specific safety trainings, the workers are able to deduce themselves in identifying the gaps and resolving safety and health problems independently (Pfeffer & Veiga, 1999; DeJoy et al., 2000; Harvey et al., 2001; Zohar, 2002; Azimah et al., 2009). It is right to assume that this cannot be considered as an "overnight" approach without a proper safety and health representative or safety committee set in place to advise pertaining to safety and health matters, but it is doable since the most respondents that represented the overall employees in the company indicated having past yearly safety trainings in their previous work tenure.

Another discovery this study is the positive influence of safety communication and feedback towards safety citizenship behavior. Regular bidirectional interactions should be forged and encouraged to the employees. Regular safety feedbacks can rectify ongoing safety and health issues (Chong, Ramayah & Subramaniam, 2016) and in turn also is indirectly giving a chance for the employees to learn more on safety and health aspects (Mearns et al., 2003).

Using other ways to reduce communication barriers between staffs and management would be essential to the aim for individual behavioral improvements. As mentioned by Azimah et al. (2009) and Neal & Griffin (2002), the success of safety communication and feedback lies in its methods, frequency and the openness in its communication. Many organizations sometimes do not follow the correct way and assume their workers have got the message.

In order to make sure that the employee safety and health communication reaches the intended staffs, possible ways would include using regular electronic mails with an option to have an auto generated reply to the sender once the email is read. This will ease on tracking and tracing. Some companies have also looked into the possibility of investing in office business communication tools that do more in data collection and in managing communications and feedbacks. These tools help to identify the current communication and feedback flow, inconsistencies and if needed; help to improve it.

With assumption being negated, the company can move into making sure that the company's safety and health visions and missions are shared effectively to all employees. Another possible venture is for the organization to provide the correct avenues for the employees to communicate openly. Using online surveys, intranet SharePoint, online statistics reports and even printing safety and health agendas and awareness in the company's annual reports can help to improve feedback and communication. Håvold & Nesset (2008) mentioned that organizations should provide and effective platform to make sure that safety communication and feedback is done in an effective and progressive manner. Last but not least, the company should make sure all incoming information and outgoing communication is trackable and traceable. This is to ensure that the correct and update to date information is shared

proactively; therefore periodically improving the attitudes and awareness of its employees in a timely well-paced manner.

The fourth finding of this study is the influence of work pressure. It has been noted that this variable exerted the highest relationship towards safety citizenship behavior among employees in the service and instrumentation company. Therefore it is crucial that the company places extra effort into making sure that there is more eustress than distress among workers. The researcher assumes that the offices' resources, means, access to work and systems are well managed; creating a less stressful environment at the workplace. A good general atmosphere directly effects positive changes towards individual attitudes of the workers (Kirkcaldy et al., 1999; Norris et al., 2000). Managers and supervisors can further evaluate their workers of subordinate's job descriptions and responsibilities to make sure that the workers do not feel too pushed or pressured. It is often the case, when job responsibilities are increased but not really in par with the workers compensation. In some cases, workers are only promised salary increments after the responsibilities are undertaken, much too not the expectations of the workers. Therefore to eliminate this, the company can opt for other ways to remunerate workers based on their performance in safety and health perspectives. Rewards and recognition generally would be a good way to strengthen and increase the workers attitudes towards safety. Jain & Cooper (2012) mentioned in their study among Indian BPO firms that most were unsatisfied with their salaries with high stressful jobs; resulting in poor safety citizenship behaviors. Therefore the researcher suggested that compensation management is needed to make sure that the employees achieve a good salary which in turn promotes positive work attitudes among the workers.

Last but not least, there is a positive influence of safety-specific transformational leadership (SSTL) towards safety citizenship behavior found in this study. Leadership is often the one of the most important components in any successful safety related programs within organizations to Jaafar et al. (2017). It is the leaders' support and commitment that changes the mindset and decreases the negative effects of safety behavior among the workers to give priority to safety issues and to make sure that corrective actions are well taken and accidents and mishaps are lessened or at best eliminated. Therefore, the company should engage to have leadership seminars and excursions to focus more in molding transformational type leaders. Transformational leaders have the ability to portray confidence levels to other workers, therefore intensifying the level of positive interactions and participation among the employees and leaders. Leaders who encourage safety should go beyond rational reasoning to develop effective bonds with their employees (Conchie, Taylor & Donald, 2011).

5.4 Limitations and suggestions for future research

There were a couple of limitations that the researcher experienced during the course and conduct of this study with regards to data collection. This chapter will highlight those limitations and possibly recommend alternatives to improve future research studies.

The first limitation was due to the respondents' overall participation. An official invitation was sent by the researcher to all the employees in the office to gather in a meeting room for hardcopy questionnaires to be distributed. The invitation was staggered to three different days to accommodate for employees who were maybe travelling or out of office. The time chosen was in the evening just before official working hours end as the researcher believed that most of the staffs would be out of office in the early hours of the morning and afternoon.

Unfortunately, the response was still poor as most of the service engineers and service support specialists who came back to office after remote support may have experienced "burnout" and eventually influenced their interest to voluntarily participate in the study.

As such, this data collection process was not completed even after two weeks, resulting in lost time and effort which prompted the researcher to opt using an online survey approach. Using this method, the present organization's staffs could answer the questionnaire anywhere, anytime and without physical limitations. Data collection was fully completed within the proposed time frame of two weeks. Therefore, it is suggested for future researchers that may want to perform studies in likely organizations or companies with remotely stationed or travelling employees that are not physically in office all the time to directly use the online survey approach to reduce efforts, save time in collecting data, cost efficient and not to mention environmentally friendly.

Secondly, this study takes into account the general perception of respondents from two country sites; Malaysia and Singapore offices. There could be some variances in terms of working culture, ethics and social expectations that may have influenced the results of antecedents of safety climate towards safety citizenship behavior in the investigated offices. Therefore, it is recommended that this study is to be simulated in other site offices of the service and instrumentation company; preferably encompassing Asia Pacific regions first before moving on to global offices so as to get a better perception among the general workers in the company.

5.5 Conclusion

The results of this study has therefore concluded that the instrumentation and service sector is in line with most of the results that had been ascertained by other researches done in other high risk, chemical and manufacturing industries in terms of employees safety behavior; specifically focusing on safety citizenship behavior (SCB). The results have demonstrated the importance of workers participation, safety training, safety communication and feedback, work pressure and safety-specific transformational leadership (SSTL) in influencing the level of safety citizenship behavior (SCB) among the employees in the instrumentation and service sector, therefore giving new hope for this specific sector to gain more expertise in managing employees' behaviors with regards to health and safety.

It is also the intention of this study in lieu of past occurrences to shed some light towards the main problem, which is increasing occupational accident rates in the industrial sectors. It is pertinent that several improvements can be justified and met with hopes of decreasing the possibility of having future proliferation of occupational accidents at the workplace, decreasing downtime while gaining better service recognition and business growth locally and internationally. It is also believed that this study would benefit those who are relevant to practices of safety and health, educators on safety and health aspects, present or future students in academic research studies, suppliers, governmental and private institutions or organizations as well as for anyone with the thirst for safety and health knowledge.

REFERENCES

Abdelhamid, T.S., & Everett, J.G. (2000). Identifying root causes of construction accidents. *Journal of Construction Engineering and Management, 126*(1), 52-60.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*, 179–211.

Ali, H., Abdullah, N.A., & Subramaniam, C. (2009). Management practice in safety culture and its influence on workplace injury: An industrial study in Malaysia. *Disaster Prevention and Management*, 18(5), 470- 477.

Ali, D., Yusof, Y., & Adam, A. (2017). Safety Culture and Issue in the Malaysian Manufacturing Sector. *Faculty of Mechanical and Manufacturing Engineering.* Universiti Tun Hussein Onn Malaysia.

Al-Refaie, A. (2013). Factors affect companies' safety performance in Jordan using structural equation modeling. *Safety Science, 57*, 169-178.

Aryee, S., & Hsiung, H.H. (2016). Regulatory focus and safety outcomes: An examination of the mediating influence of safety behavior.

Alsamadani, R., Halllowell, M.R., Javernnick-Will, A., & Cabello, J. (2013). Relationships among language proficiency, communication patterns, and safety performance in small work crews in the United States. *Journal of Construction Engineering and Management 139*(9), 1125-1134.

Azer, I., Hamzah, H.C., Mohamad, S.A., & Abdullah, H. (2016). Contribution of Economic Sectors to Malaysian GDP, *Chapter 17*, Pg.185.

Azimah, C.A., Jeffery, T.S., Krassi, B.R., Satvinder, S.D., & Yang, M.G. (2009). Managing safety: The role of safety perception approach to improve safety in organizations. *IBEJ*, 2(1), 1–18

Bahari, S.F. (2011). An Investigation of Safety Training, Safety Climate and Safety Outcomes: *A Longitudinal Study in a Malaysian Manufacturing Plant*.

Barling, J., Loughlin, C., & Kelloway, E.K. (2002). Development and test of a model linking safety-specific transformational leadership and occupational safety. *The Journal of Applied Psychology, 87*(3), 488–496.

Bass, B.M. (1985). Leadership and Performance beyond Expectations. The Free Press, New York.

Bass, B.M., & Bass, R. (2009). The Bass handbook of leadership: Theory, research, and managerial applications. Simon and Schuster, New York.

Bland, J., Altman, D. (1997). Statistics notes: Cronbach's alpha. *BMJ. 314:275.*

Bowander, B. (1987). The Bhopal accident. *Technological Forecasting and Social Change 32*(2), 169–182.

Bryman, A., & Bell, E. (2011). Business research methods. (3rd edition).New York, USA.

Brown, R.L., & Holmes, H. (1986). The use of a factor-analytic procedure for assessing the validity of an employee safety climate model. *Accident Analysis & Prevention, 18*(6), 455-470.

Burns, J.M. (1978). Leadership. Harper & Row, New York.

Cheyne, A.J.T. (2000). A model of safety climate for the manufacturing sector.

Cheyne, A., Cox, S., Oliver, A., & Tomás, J.M. (1998). Modelling safety climate in the prediction of levels of safety activity. *Work & Stress: An International Journal of Work, Health & Organisations, 12*(3), 255-271.

Chong, H.C., Ramayah, T., & Subramaniam, C. (2016). The relationship between critical success factors, internal control and safety performance in the Malaysian manufacturing sector.

Choudhry, R.M., & Fang, D. (2008). Why operatives engage in unsafe work behavior: Investigating factors on construction sites.

Christian, M.S., Bradley, J.C., Wallace, J.C., & Burke, M.J. (2009). Workplace Safety : A Meta-Analysis of the Roles of Person and Situation Factors. *Journal Of Applied Psychology, 94*(5), 1103–1127.

Clarke, S. (2006). The relationship between safety climate and safety performance: A meta-analytic review. *Journal of Occupational Health Psychology,11*(4), 315-327.

Clarke, S. (2013). Safety leadership: A meta-analytic review of transformational and transactional leadership styles as antecedents of safety behaviours. *Journal of Occupational & Organisational Psychology, 86*(1), 22-49.

Clissold, G. (2005). ROLE STRESS AS A PREDICTOR OF SAFETY CLIMATE AND SAFETY PERFORMANCE. Department of Management. *Working Paper Series, ISSN,* 1327-5216.

Cohen, H.H., & Cleveland, R.J. (1979). Safety program practices in record-holding plants. *The National Institute of Occupational Safety and Health (NIOSH), DHHS (NIOSH)Publication Number 79-136.*

Cohen, A. (1977). Factors in successful occupational safety programs. *Journal of Safety Research, 9*(4), 168-178.

Conchie, M.S., Taylor, P., & Donald, I. (2011). Promoting Safety Voice With Safety-Specific Transformational Leadership: The Mediating Role of Two Dimensions of Trust. *Journal of occupational health psychology, 17*, 105-15.

Cooper, M.D. (2006). The impact of management's commitment on employee behaviour: A field study. *ASSE- MEC 7th Professional Development Conference & Exhibition*, Kingdom of Bahrain, March 18–22.

Cox, S., & Flin, R. (1998). Safety culture: philosopher's stone or man of straw? *Work and Stress 12*(3), 189-201.

Cox, S., Cheyne, A.J.T. (2000). Assessing safety culture in offshore environments. *Safety Science, 34*, 111-129.

Coyle, I.R., Sleeman, S.D., & Adams, N. (1995). Safety climate. *Journal of Safety Research, 26*(4), 247-254.

Dahl, Ø., & Olsen, E. (2013). Safety compliance on offshore platforms: a multi-sample survey on the role of perceived leadership involvement and work climate. *Safety Science,54*, 17-26.

Dedobbeleer, N., & Beland, F. (1991). A safety climate measure for construction sites. *Journal of Safety Research, 22*, 97-103.

DeJoy, D.M. (1994). Managing safety in the workplace: An attribution theory analysis and model. *Journal of Safety Research, 25*(1), 3-17.

Dejoy, D.M., Searcy, C.A., Murphy, L.R., & Gershon, R.R.M. (2000). Behavioural-diagnostic analysis of compliance with universal precautions among nurses. *Journal of Occupational Health Psychology, 5*, 127-141.

DeJoy, D.M. (2005). Behaviour change versus culture change: divergent approaches to managing workplace safety. *Safety Science, 43*(2), 105-129.

DeVellis, R. (2003). Scale Development: Theory and Applications.

Diaz, R.I., & Cabrera, D.D. (1997). Safety climate and attitude as evaluation measures of organization safety. *Accident Analysis and Prevention, 29*(5), 643-650.

Didla, S., Mearns, K., & Flin, R. (2009). Safety citizenship behaviour: A proactive approach to risk management. *Journal of Risk Research, 12*(3), 475-483.

Dillard, B.G. (1997). Employee involvement: An effective strategy for reducing workers' compensation costs. *Journal of Fashion Marketing and Management, 2*, 318-328.

Du Xuesheng & Zhao Xintao (2011). An Empirical Investigation of the Influence of Safety Climate on Safety Citizenship Behavior in Coal Mine. *Procedia Engineering , 26*, 2173-2180.

Eleventh Malaysia Plan 2016-2020 (2018). Retrieved from *http://www.epu.gov.my/en/rmk/eleventh-malaysia-plan-2016-2020*

Fam, I.M., Nikoomaram, H., & Soltanian, A. (2012). Comparative analysis of creative and classic training methods in health, safety and environment (HSE) participation improvement. *Journal of Loss Prevention in the Process Industries, 25*(2), 250-253.

Fernández-Muñiz, B., Montes-Peón, J.M., & Vázquez-Ordás, C.J. (2014). Safety leadership, risk management and safety performance in Spanish firms. *Safety Science, 70,* 295-307.

Fernando, Y.Z.S., & Janbi, L. (2008). The determinant factors of safety compliance at petrochemical processing area: Moderator effects of employees experience and engineering background. *Proceedings of the 9th Asia Pacific Industrial Engineering & Management Systems Conference*, 1442-1452.

Flin, R., & Yule, S. (2004). Leadership for safety: industrial experience. *BMJ Quality & Safety 13*(2).

Flin, R., Mearns, K., O'Connor, P., & Bryden, R. (2000). Measuring safety climate: *Identifying the common features. Safety Science, 34,* 177-192.

Flin, R., Mearns, K., Fleming, M., & Gordon, R. (1996). Risk Perceptions and Safety in the Offshore Oil and Gas Industry.

Fruhen, L.S., Mearns, K.J., Flin, R., Kirwan, B. (2013). Skills, knowledge and senior managers' demonstrations of safety commitment. *Safety Science, 69*, 29-36.

Fugas, C.S., Silvia, A., Silvia, A.S., & Meliá, J.L. (2012). Another look at safety climate and safety behavior: Deepening the cognitive and social mediator mechanisms. *Accident Analysis & Prevention, 45*, 468-477

Fuller, C.W. (1999). An employee-management consensus approach to continuous improvement in safety management. *Employee Relations, 21*(4), 405-417.

Gale, R. (2016). Governing Health and Safety in the Electronics Industry in Malaysia.

Geller, E.S. (2001). A Behaviour-based safety in industry: Realizing the large-scale potential of psychology to promote human welfare. *Applied and Preventive Psychology, 10*, 87-105.

Ghani, M.K., Abdul Hamid, Z., Mohd Zain, M.Z., Abdul Rahim, A.H., Mohamad Kamar, K.A., & Abdul Rahman, M.A. (2010). Safety in Malaysian construction: The challenges and initiatives. *Construction Research Institute Malaysia (CREAM), CIDB Malaysia.*

Giberson, T.R., Resick, C. J., Dickson, M. W., Mitchelson, J. K., Randall, K. R., & Clark, M.A. (2009). Leadership and organisational culture: Linking CEO characteristics to cultural values. *Journal of Business and Psychology, 24*(2), 123-137.

Gillen, M., Baltz, D., Gassel, M., Kirsch, L., & Vaccaro, D. (2002). Perceived safety climate, job demands, and coworker support among union and nonunion injured construction workers. *Journal of Safety Research 33*(1), 33-51.

Gilmore, M.R., Perdue, S.R., & Wu, P. (2002) Behavior-Based Safety: The Next Step in Injury Prevention. *SPE International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production.* 20 -22 March 2002. Kuala Lumpur, Malaysia.

Glendon, A.I. & Litherland, D.K. (2001). Safety climate factors, group differences, and safety behaviour in road construction. *Safety Science, 39*, 157-188.

Glennon, D.P. (1982). Measuring organizational safety climate. *Australian Safety News*, 23-28.

Griffin, M.A., & Neal, A. (2000). Perceptions of Safety at Work: A Framework for Linking Safety Climate to Safety Performance, Knowledge and Motivation. *Journal of Occupational Health Psychology*, *5*(3), 347-358.

Gyekye, S.A. (2010). Occupational Safety Management: The Role of causal attribuation. *International Journal of Psychology, 45*(6), 405-416.

Hafizah, N. (2013). The effect of safety behavior on the relationship between teamwork and safety performance in Malaysia Marine and Heavy Engineering Sdn. Bhd. *Master's Degree fulfillment.* Universiti Teknologi Malaysia.

Hair, J.F., Money, A.H., Samouel, P., & Page, M. (2007). *Research Method for Business.* Chichester: John Wiley & Sons Ltd.

Harper, A.C., Cordery, J.L., de Klerk, N.H., Sevastos, P., Geelhoed, E., Gunson, C., & Colquhoun, J. (1997). Curtin industrial safety trial: managerial behavior and program effectiveness. *Safety Science 24*(3): 173-179.

Harshbarger. D., & Rose, T. (1991). New possibilities in safety performance and the control of workers compensation costs. *Journal of Occupational Rehabilitation, 1*(2) 133-143.

Haslam, R.A., Hide, S.A., Gibb, A.G.F., Gyi, D.E., Pavitt, T., Atkinson, S., & Duff, A.R. (2005). Contributing factors in construction accidents.

Håvold, J.I. & Nesset, E. (2008). From safety culture to safety orientation: Validation and simplification of a safety orientation scale using a sample of seafarers working for Norwegian ship owners. *Safety Science, 24*(7), 1-22.

Harvey, J., Bolam, H., Gregory, D., & Erdos, G. (2001). The effectiveness of training to change safety culture and attitudes within a highly regulated environment. *Personnel Review, 30*(6), 615-646.

Heinrich, H.W. (1959). Industrial accident prevention: a scientific approach. *(4th) edition, McGraw-Hill.*

Hill, N.S., Seo, M.G., Kang, J.H., & Taylor, M.S. (2011). Building Employee Commitment to Change Across Organizational Levels: The Influence of Hierarchical Distance and Direct Managers' Transformational Leadership, *Organization Science, 23*(3), 758-777.

Hilton, M.F., & Whiteford, H.A. (2010). Associations between psychological stress, workplace accidents, workplace failures and workplace successes. *International Archives of Occupational and Environmental Health, 83*(8), 923-933.

Hofmann, D.A., Jacobs, R., & Landy, F. (1995). High Reliability Process Industries: Individual, Micro and Macro Organizational Influences on Safety Performance. *Journal of Safety Research, 26*(3), 131-149.

Hofmann, D.A., Morgeson, F.P., & Gerras, S.J. (2003). Climate as a moderator of the relationship between leader-member exchange and content specific citizenship: Safety climate as an exemplar. *The Journal of Applied Psychology, 88*(1), 170-178.

Hofmann, D.A. & Morgeson, F.P. (1999). Safety-related behaviour as a social exchange: The role of perceived organizational support and leader-member exchange. *Journal of Applied Psychology, 84*(2), 286-296.

Hofmann, D.A., Stetzer, A. (1996). A cross-level investigation of factors influencing unsafe behaviors and accidents. *Personnel Psychology, 49(2),* 307-339.

Hofmann, D.A., Jacobs, R., & Landy, F. (1995). High Reliability Process Industries: Individual, Micro, and Macro Organizational Influences on Safety Performance. *Journal of Safety Research, 26*(3), 131-149.

Hong, K.T., Surienty, L., & Hung, D.K.M. (2011). Safety Management Practices and Safety Behaviour: A Preliminary Investigation in Malaysian Small and Medium Enterprises in Northern Corridor Economic Region (NCER).

Houtman, I., Jettinghoff, K., & Cedillo, L. (2007). Raising awareness of stress at work in developing countries: a modern hazard in a traditional working environment: advice to employers and worker representatives. *World Health Organization Protecting Workers Health Series No. 6.* Retrieved from *http://apps.who.int/iris/handle/10665/4295.*

HSE (2004). Working Together to Reduce Stress at Work: A Guide for Employees. *HSE Information.* Retrieved from *http://www.hse.gov.uk/stress/ standards/pdfs/leaflet.pdf.*

HSE. (1999). Reducing error and influencing behaviour. (2nd) *Edition, Health and Safety Series Booklet HS (G), 48.* Retrieved from *http://www.hse.gov.uk/pUbns/priced/hsg48.pdf.*

Hsu, S.H., Lee, C.C., Wu, M.C., Takano, K. (2010). The influence of organizational factors on safety in Taiwanese high-risk industries. *Journal of. Loss Prevention Process Industries 23*(5), 646-653.

Hsu, S.H., Lee, C.C., Wu, M.C., & Takano, K. (2007). Exploring cross-cultural differences in safety climate of oil refinery plants in Japan and Taiwan, *in proceedings of the International Conference on Business and Information. Tokyo, Japan.*

Hsu, S.H., Lee, C.C., Wu, M.C., & Takano, K. (2008). A Cross-Cultural Study of Organizational Factors on Safety: Japanese vs. Taiwanese Oil Refinery Plants. *Accident Analysis and Prevention, 40*, 24-34.

Huang, Y.K., Ho, M., Smith, G.S., Chen, P.Y. (2006). Safety climate and self-reported injury: Assessing the mediating role of employee safety control. Accident Analysis & Prevention, 38, 425-433.

Hughes, P., & Ferrett, E. (2005). Introduction to health and safety in construction. Oxford, Elsevier Butterworth- Heinemann.

Ibrahim, M.Z. (2012). A Case Study of Safety Behavior in the Construction Site. *Universiti Utara Malaysia.*

Jagdeep, S., Chokar, S., & Wallin, J.A. (1984). Improving safety through applied behavior analysis. *Journal of Safety Research, 15*(4), 141-151.

Jain, A.K., & Cooper, C.L. (2012). Stress and organisational citizenship behaviours in Indian business process outsourcing organisations. *IIMB Management Review, 24*(3), 155-163.

James, K., & Arroba, T. (1999). Energizing the workplace: a strategic response to stress. Gower Publishing Ltd.

Jaselski, E.J., Anderson, S.D., & Russel, J.S. (1996). Strategies for Achievement Excellence in Construction Safety Performance, *Journal of Construction Engineering and Management 122*(1), 61-70.

Jex, S.M., & Beehr, T.A. (1991). Emerging theoretical and methodological issues in the study of work-related stress. *Research in Personnel and Human Resource Management, 9*, 311-365.

Jingfeng Xia (2010). A Longitudinal Study of Scholars Attitudes and Behaviors Toward Open-Access Journal Publishing. *JASIST, 61,* 615-624.

Jiang, L., & Probst, T.M. (2016). Transformational and passive leadership as cross-level moderators of the relationships between safety knowledge, safety motivation, and safety participation. *Journal of Safety Research, 57*, 27-32.

Kamarrudin, N., Ali, M.W., Kamsah, M.Z., & Hassim, M.H. (2009). Computer-Based Safety Training for Semiconductor Industry. *Jurnal Teknologi.*

Kaler, J. (1999). Understanding participation. *Journal of Business Ethics, 21*, 125-135.

Kelloway, E.K., Mullen, J., & Francis, L. (2006). Divergent Effects of Transformational and Passive Leadership on Employee Safety. *Journal of Occupational Health Psychology, 11*(1), 76-86.

Khader, M.M.A. (2004). Impact of human behaviour on process safety management in developing countries. *Process Safety and Environmental Protection, 82*(B6), 431-437.

Kirkcaldy, B., van den Eeden, P., Trimpop, R. and Martin, T. (1999). Modelling psychological and work-situation processes that lead to traffic and on-site accidents. *Disaster Prevention and Management, 8*(5), 342-350.

Koster, R., Stam, D., & Balk, B.M. (2011). Accidents happen: The influence of safety-specific transformational leadership, safety consciousness, and hazard reducing systems on warehouse accidents.

Komaki, J., Heinzmann, A.T., & Lawson, L. (1980). Effect of training and feedback: Component analysis of behavioural safety program. *Journal of applied psychology, 65*(3), 261-270.

Kortum, E., Leka, S., & Cox, T. (2010). Psychosocial risks and work-related stress in developing countries: Health impact, barriers and solutions. *International Journal of Occupational Medicine and Environmental Health, 23*(3), 225-238.

Koster, R.B.M., Stam, D., & Balk, B.M. (2011). Accidents happen: The influence of safety-specific transformational leadership, safety consciousness, and hazard reducing systems on warehouse accidents. *Journal of Operations Management, 29*, 753-765.

Krause, T.R. (2005). *Leading with Safety*. John Wiley & Sons. Inc. Retrieved from *http://ebooks.rahnuma.org/management/Safety and management ebooks/Safety management/leading with safety.pdf*.

Krause, T.R., Seymour, K.K., & Sloat, K.C.M. (1999). Long term evaluation of a behavior-based methods for improving safety performance: a meta- analysis of interrupted time-series replications. *Safety Science, 32*, 1-18.

Krejcie, R.V., & Morgan, D.W. (1970). Determining Sample Size For Research Activities. *Educational And Psychological Measurement, 30*, 607-610.

Kundu, S., Yadav, B., & Yadav, A. (2015). Effects of Safety Climate and Safety Attitude on Safety Performance: A Study of an Indian Organization, 3-10.

Kuhnert, K.W., & Lewis, P. (1987). Transactional and transformational leadership: A constructive/developmental analysis. *Academy of Management Review, 12*(4), 648-657.

Landmann, M., Kmiotek-Meier, E., Lachmann, D., & Lorenz, J. (2015). Three Methods, Four Different Outcomes! How to Test The Reliability And Validity Of A Graduate Survey Competence Scale. *Theory and Method of Higher Education Research, 1*, 119-139.

Lauver, K.J. (2007). Human resource safety practices and employee injuries. *Journal of Managerial*, *19*(3), 397-413.

Law, W.K., Chan, A.H.S., & Pun, K.F. (2006). Prioritizing the safety management elements: a hierarchical analysis for manufacturing enterprises. *Industrial Management & Data Systems*, *106*(6), 778-792.

Lawton, R. (1998). Not working to rule: Understanding procedural violations at work. *Safety Science, 28*, 77-95.

Lee, T. (1998). Assessment of safety culture at a nuclear reprocessing plant. *Work Stress 12*(3), 217-237.

Lingard, H., Cooke, T., & Blismas, N. (2012). Do perceptions of supervisors' safety responses mediate the relationship between perceptions of the organizational safety climate and incident rates in the construction supply chain? *Journal of Construction Engineering Management, 138*, 234-241.

Lo, M.C., Ramayah, T., Wei Min, H., & Songan, P. (2010). The relationship between leadership styles and organizational commitment in Malaysia: role of leader–member exchange. *Universiti Malaysia Sarawak.*

Lois, P., Wang, J., Wall, A., & Ruxton, T. (2004). Formal safety assessment of cruise ships. *Tourism Management 25*, 93-109.

Lu, C.S., Tsai, C.L. (2008). The effects of safety climate on vessel accidents in the container shipping context. *Accident Analysis and Prevention 40*(2), 594–601.

Lu, C.S., & Yang, C.S. (2010). Safety leadership and safety behavior in container terminal operations. *Safety Science*, *48*(2), 123-134.

Lu, C.S., & Yang, C.S. (2010). Safety climate and safety behavior in the passenger ferry context. *Accident Analysis and Prevention 43*, 329-341.

Martínez-Córcoles, M., Gracia, F., Tomás, I., & Peiró, J.M. (2011). Leadership and employees' perceived safety behaviors in a nuclear power plant: A structural equation model. *Safety Science, 49*(8-9), 1118 -1129.

Marsh, T., Davies, R., Phillips, R.A., Duff, R., Robertson, I.T., Weyman, A., & Cooper, M.D. (1998). The role of management commitment in determining the success of a behavioral safety intervention. *Journal of the Institution of Occupational Safety and Health 2*(2), 45-56.

Marsh, T.W., Robertson, I.T., Duff, A.R., Phillips, R.A., Cooper, M.D., & Weyman, A. (1995). Improving safety behavior using goal setting and feedback. *Leadership & Organization Development Journal, 16*(1), 5-12.

Mashi, M.S. (2014). Moderating effect of consideration of future safety consequences on the relationship between safety management practices and safety performance among health care workers: A conceptual analysis. *International Journal of Academic Research in Business and Social Sciences, 4*(6).

Mathis, T.L. (2001). Street Smart Behavior Safety. *SSE Professional Development Conference and Exposition,* June 10 - 13, 2001, Anaheim, California.

Mat Zin, S., & Ismail, F. (2011). Employers' Behavioural Safety Compliance Factors toward Occupational, Safety and Health Improvement in the Construction Industry.

McDonald, M.A., Lipscomb, H.J., Bondy, J., & Glazner, J. (2009). Safety is everyone's Job: The key to safety on a large university construction site. *Journal of Safety Research, 40,* 53-61.

Mearns, K., & Yule, S. (2009). The role of national culture in determining safety performance: Challenges for the global oil and gas industry. *Safety science, 47*(6), 777-785.

Mearns, K., Whitaker, S.M., & Flin, R. (2003). Safety climate, safety management practice and safety performance in offshore environments. *Safety Science, 41,*641-680.

Mearns, K., Flin, R., Fleming, M., & Gordon, R. (1997). Human and Organisational Factors in Offshore Safety (HSE Report OTH 543), HM Stationary Office, Norwich, UK.

Michael, J.H., Evans, D.E., Jansen, K.J., & Haight, J.M. (2005). Management commitment to safety as organizational support: Relationships with non-safety outcomes in wood manufacturing employees. *Journal of Safety Research, 36*(2), 171-179.

Mohammadfam, I., Ghasemi, F., Kalatpour, O., & Moghimbeigi, A. (2017). Constructing a Bayesian network model for improving safety behavior of employees at workplaces. *Applied Ergonomics, 58,* 35-47.

Mohamed, S. (2002) Safety Climate in Construction Site Environments. *Journal of Construction Engineering and Management, 128,* 375-384.

Molenaar, K.R., Park, J.I., & Washington, S. (2009). Framework for measuring corporate safety culture and its impact on construction safety performance. *Journal of Construction Engineering Management, 135,* 488-496.

Mullen, J.E., & Kelloway, E.K. (2009). Safety leadership: A longitudinal study of the effects of transformational leadership on safety outcomes. *Journal of Occupational and Organizational Psychology, 82*(2), 253-272.

Mullen, J., Kelloway, K., & Teed, M. (2011). Inconsistent style of leadership as a predictor of safety behaviour. *Work & Stress, 25*(1), 41-54.

Mullen, J. (2004). Investigating factors that influence individual safety behaviour at work. *Journal of Safety Research, 35,* 275-285.

Nahrgang, J.D., Morgeson, F.P. & Hofmann, D.A. (2007). Predicting safety performance: A meta-analysis of safety and organizational constructs, *Poster session presented at the 22nd Annual Conference of the Society for Industrial and Organizational Psychology, New York.*

National Occupational Accident Fatality Rate. (2017). Retrieved from *http://www.dosh.gov.my/index.php/en/national-occupational-accident-fatality-rate.*

Neal, A., Griffin, M.A. (2002). Safety climate and safety behavior. *Australian Journals Management, 27*, 67-75.

Neal, A., Griffin, M.A., & Hart, P.M. (2000). The impact of organizational climate on safety climate and individual behavior.

Neal, A., & Griffin, M.A. (2004). Safety climate and safety at work. *The psychology of workplace safety.*

Neal, A., Griffin, M.A., & Hart, P.M. (2000). The impact of organizational climate on safety climate and individual behaviour. *Safety Science, 34*, 99-109.

Neal, A., & Griffin, M.A. (2006). A Study of the Lagged Relationships Among Safety Climate , Safety Motivation , Safety Behavior , and Accidents at the Individual and Group Levels, *91*(4), 946-953.

Nielsen, K. (2000). Organizational theories implicit in various approaches to OHS management. *Perspectives on an International Development.* Pergamon, Oxford, 99-124.

Niskanen, T. (1994). Safety climate in the road administration. *Safety Science,17*, 237-255.

Nohammer, E., Schusterschitz, C., & Stummer, H. (2010). Determinants of employee participation in workplace health promotion. *International Journal of Workplace Health Management, 12*(3), 97-110.

Nordin, R.B., Araki, S., Sato, H., Yokoyama, K., Wan Muda, W.A.N., & Win Kyi, D. (2002). Effects of Safety Behaviours with Pesticide Use on Occurrence of Acute Symptoms in Male and Female Tobacco-growing Malaysian Farmers. *Industrial Health, 40*(2).

Norris, F.H., Matthews, B.A., & Riad, J.K. (2000). Characterological, situational and behavioural risk factors for motor vehicle accidents: a prospective evaluation. *Accident Analysis and Prevention, 32*, 505-515.

Nunally, J.C., & Bernstein, I.H. (1994). Psychometric Theory (3rd Edition). New York: McGraw-Hill.

O'Brien, N. (2003). Emergency Preparedness for Older People. International Longevity Center, USA.

Occupational Accidents Statistics by Sector Until October 2017.Retrieved from *http://www.dosh.gov.my/index.php/en/occupational-accident-statistics/by-sector.*

Occupational Diseases and Poisoning Statistics by Sector 2016. Retrieved from *http://www.dosh.gov.my/index.php/en/occupational-diseases-and-poisoning-statistic.*

O'Toole, M. (2002). The Relationship between Employees' Perceptions of Safety and Organizational Culture. *Journal of Safety Research, 33,* 231-243.

Pfeffer, J., Veiga, J.F. (1999). Putting people first for organizational success. *The Academy of Management Executive, 13*(37).

Punnett, L., Cherniack, M., Henning, R., Morse, T., & Faghri, P. (2009). A conceptual framework for integrating workplace health promotion and occupational ergonomics programs. *Public Health Reports (Washington, D.C.: 1974) 124 (Suppl),* 16-25.

Podsakoff, P.M., & Organ, D.W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management, 12,* 69-82.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., & Podsakoff, N.P. (2003). Common method biases in behavioural research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88,* 879-903.

Rahim, N.A., Hui-Kim, N., Biggs, D., & Boots, K. (2014). Perception of safety, physical working conditions and stress between Malaysia and United Kingdom. *International Journal of Business and Society,15*(2), 321-338.

Rodrigues, A., & Ferreira, M.C. (2015). The Impact of Transactional and Transformational Leadership Style on Organizational Citizenship Behaviors.

Roughton, J. (1993). Integrating quality into safety and health management. *Industrial Engineering, 7,* 35-40.

Sandalcilar, A.R., & Altiner, A. (2012). Foreign direct investment and gross domestic product: An application on ECO region (1995–2011). *International Journal of Business and Social Science, 3*(2), 189-198.

Sampson, J., DeArmond, S., & Chen, P.Y. (2014). Role of safety stressors and social support on safety performance.

Sawyer, J., & Guetzkow, H. (1965). Bargaining and Negotiation in International Relations. *A Social-Psychological Analysis,* 465–520, NY. Holt, Rinehart and Winston.

Said, S., Halim, Z.A., & Said, F. (2012). Workplace Injuries in Malaysian Manufacturing Industries. *NIOSH Journal, 9*(1), 21-32.

Selvarajah, C., & Meyer, D. (2008). One nation, three cultures: exploring dimensions that relate to leadership in Malaysia. *Leadership and organization development journal, 29*(8), 693-712.

Segaran, N.S. (2013). The influence of work pressure, safety climate and safety participation in determining safety behaviour among local and foreign workers in a Malaysian steel industry. Retrieved from *http://etd.uum.edu.my/4994/2/s809097_abstract.pdf.*

Sekaran, U. (2005). Research method for business: A skill building approach. United Kingdom: John Wiley & sons, Inc.

Sekaran, U., & Bougie, R. (2010). Research methods for business: *A skill building approaches (5th ed.).* UK: John Wiley & Sons.

Shannon, H.S., Walters, V., Lewchuk, W., Richardson, J., Moran, L.A., Haines, T., & Verma, D. (1996). Workplace organizational correlates of lost-time accident rates in manufacturing. *Am. J. Ind. Med, 29*, 258-268.

Seo, D.C. (2005). An explicative model of unsafe work behaviour. *Safety Science, 43*, 187-211.

Shah Rollah, A.W., Ishak, M.S., & Durrishah, I. (2012). The Role of Transformational Leader to Safety Performance in Malaysia's Automotive Industry. KPJ International University College of Nursing and Health Sciences, Malaysia. Retrieved from *http://www.ipedr.com/vol42/039-ICKCS2012-K10050.pdf.*

Sharpe, M., & Wilks, D. (2002). ABC of psychological medicine, *British Medical Journal, 325*,480-483.

Siu, O.L., Phillips, D.R., & Leung, T.W. (2004). Safety climate and safety performance among construction workers in Hong Kong: The role of psychological strains as mediators. *Accident Analysis & Prevention 36*(3), 359-366.

Smith, T., Eldrigdge, F., & Dejoy, D.M. (2016). Safety-specific transformational and passive leadership influences on firefighter safety climate perceptions and safety behavior outcomes.

Smith, M.J., Cohen, H.H., Cohen, A., & Cleveland, R.J. (1978). Characteristics of successful safety programs. *Journal of Safety Research, 10*, 5-15.

Specht, M., Chevreau, F.R., & Denis-Remis, C. (2006). Dedicating management to cultural processes: Toward a human risk management system. Journal of Risk Research 9, 525–542

Stave, C., Pousette, A., & Torner, M. (2008). Risk and safety communication in small enterprises. How to support a lasting change towards work safety priority. *Journal of Risk Research, 11*(1-2),195-206.

Subramaniam, C., Shamsudin, F.M., & Mohd Zin, M.L., & Ramalu, S.S., & Hassan, Z. (2016). Safety Management Practices and Safety Compliance in Small Medium Enterprises: Mediating Role of Safety Participation. *Asia-Pacific Journal of Business Administration, 8*(3).

Sustainability Report. (2016). Sustainability Reports. *Mettler-Toledo website.* Retrieved from *https://www.mt.com/dam/sustainability/Sustain_rep_16/Sustainability_Report_2016.pdf*

Szer, C.L. (2012). Study to investigate the influence of work safety scale (WSS) on compliance with safety behaviour among foreign workers in construction industry. *Unpublished Master's thesis,* Universiti Utara Malaysia.

Tan-Wilhelm, D., Witte, K., Liu, W.Y., Newman, L.S., Janssen, A., Ellison, C., Yancey, A., Sanderson, W., & Henneberger, P.K. (2000). Impact of a worker notification program: Assessment of attitudinal and behavioural outcomes. *American Journal of Industrial Medicine, 37*(2), 205-213.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2*, 53-55.

Thabane, L, Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L.P., Robson, R., Giangregorio, L., & Goldsmith, C.H. (2010). A tutorial on pilot studies: The what, why and how. *BMC Medical Research Methodology, 10*(1),1-10. Retrieved from *http://www.biomedcentral.com/content/pdf/1471-2288-10-1.pdf.*

Thye, L.L. (2006). Leadership and the development of OSH culture. *Proceeding of the 9th Conference and exhibition on National Institute of Occupational Safety and Health (NIOSH), Malaysia.*

Tomas, J.M., Melia, J.L., & Oliver, A. (1999). A cross-validation of a structural equation model of accidents: organizational and psychological variables as predictors of work safety. *Work and Stress, 13*(1) 49-58.

Trimpop, R., Kirkaldy, B., Athansou, J., & Cooper, C. (2010), Individual differences in working hours, work perceptions and accident rates in vetinary surgeries. *Work Stress, 14*, 181-188.

Tucker, S., & Turner, N. (2011). Young worker safety behaviors: development and validation of measures.

Turner, N., Stride, C.B., Carter, A., McCaughey, D., & Carroll, A. (2012). Demands–Control–Support model and employee safety performance. *Accident Analysis & Prevention, 45*, 811-817.

Unnikrishnan, S., Iqbal, R., Singh, A., & Nimkar, I.M. (2015). Safety Management Practices in Small and Medium Enterprises in India. *Safety and Health at Work, 6*, 46-55.

Varonen, U. & Mattila, M. (2000). The safety climate and its relationship to safety practices, safety of the work environment and occupational accidents in eight wood-processing companies. *Accident Analysis and Prevention, 32*, 761-769.

Vinodkumar, M.N., & Bhasi, M. (2009). Safety climate factors and its relationship with accidents and personal attributes in the chemical industry.

Vinodkumar, M.N., & Bashi, M. (2010). Safety management practices and safety behaviour: Assessing the mediating role of safety knowledge and motivation. *Accident Analysis and Prevention, 42*(10), 2082–2093.

Vredenburgh, A.G. (2002). Organizational safety: Which management practioes are most effective in reducing employee injury rates? *Journal of Safety Research, 33*(2), 259-276.

Wagenaar, W.A., & Groeneweg, J. (1987). Accidents at sea: Multiple causes and impossible consequences. *International Journal of Man-machine Studies, 29*, 587-598.

Walters, D., & Nichols, T. (2006). Representation and oonsultation on health and safety in ohemioals. An exploration of the limits to the preferred model. *Employee Relations, 28*, 230-254.

Williams, J.H. (2005). Using Behavioral Safety to Improve Safety Culture. *ASSE Professional Development Conference and Exposition*, June 12 - 15, 2005, New Orleans, Louisiana.

Wills, A.R., Biggs, H.C., & Watson, B. (2005). An analysis of a safety climate measure for occupational drivers and implications for safer workplaces. *Australian Journal of Rehabilitation Counselling, 11*, 8-21.

Wong, F.K.W., Chan, S.C.M., Tse, R.Y.C., & Love, P.E.D. (2000). Improving Safety Knowledge through Training: The Case of Hong Kong. *Journal of Safety Research, 33(2)*, 259-276.

Wright, C. (1986). Routine deaths: Fatal accidents in the oil industry. *Sociological Review, 4*, 265-289.

Wu, T.C., Chen, C.H., & Li, C.C. (2007). Correlation among safety leadership, safety climate and safety performance. *Journal of Loss Prevention in the Process Industries, 6*(3), 261–272.

Wu, T.C. (2005). The Validity And Reliability of Safety Leadership Soale in Universities of Taiwan. *International Journal of Technical and Engineering Education*, 2(1), 27-41.

Wu, T.C., Liu, C.W., & Lu, M.C. (2007). Safety climate in university and college laboratories: Impact of organizational and individual faotors. *Journal of Safety Research, 38*(1), 91-102.

Xinxia, L., Huang, G., Huang, H., Wang, S. Xiao, Y., & Chen, W. (2015). Safety climate, safety behavior, and worker injuries in the Chinese manufacturing industry. *Safety Science, 78*, 173-178.

Yukl, G. (2006). Leadership in Organizations, 6th ed. Pearson Prentioe Hall, Upper Saddle, New Jersey.

Zakaria, N.H., Mansor, N., & Abdullah, Z. (2012). Workplace accident in Malaysia: Most common causes and solutions. *Business and Management Review*, *2*(5), 75-88.

Zhang, M., & Dongping, F.(2013). A continuous Behavior-Based Safety strategy for persistent safety improvement in construction Industry. *Automation in Construction, 34*, 101-107.

Zeitoun, J.D., Lefevre, J.H., Downing, N., Bergeron, H. & Ross, J.S. (2014). Inconsistencies among European Union pharmaceutical regulator safety communications: A cross-country comparison. *PLOS ONE 9*(10), 116-132.

Zikmund, W.G., Babin, B.J., Carr, J.C., & Griffin, M. (2013). Business research methods (9th edition.). Mason, OH: South-Western.

Zohar, D. (1980). Safety climate in industrial organizations: theoretical and applied implications. *Journal of Applied Psychology*, *65*, 96-102.

Zohar, D. (2002). The effects of leadership dimensions, safety climate, and assigned priorities on minor injuries in work groups. *Journal of Organizational Behaviour*, *23*, 75-92.

Zohar, D. (2007). A decision-making analysis of safety behavior: Why is it so difficult to maintain safety behavior at work? *International Journal of Risk Assessment and Management 2007, 7,* 122-136.

APPENDIX A

Date:

Dear respondents,

I am a Postgraduate student in Universiti Utara Malaysia and carrying out a survey regarding safety behaviour in order to fulfil the degree of my Masters. Attached with this letter is a short questionnaire that addresses the elements of safety behaviour and safety citizenship behaviour. I realize that your time is priceless and very precious; however, your involvement in this survey, which will take approximately about 10 to 15 minutes of your time, will contribute significantly to the success of this study.

There is no definite right or wrong answer to the statements listed in the questionnaire. Your sincerity and honesty is highly required in answering these statements. Please be assured that all your responses will be kept confidential and will be strictly used for academic research purposes only. With this I highly appreciate your cooperation and participation in this study and wish to convey my thanks in advance. If you are interested in this study please contact me via email at chandrabose.suresh@gmail.com.

Thank you for your time and attention.

Yours sincerely,

Tuan/Puan yang dihormati,

Saya adalah pelajar Sarjana dari Universiti Utara Malaysia yang sedang menjalankan satu kajian mengenai tingkah laku keselamatan untuk memenuhi syarat Sarjana dari Universiti Utara Malaysia. Soal selidik yang disertakan bersama dengan surat ini merangkumi elemen tingkahlaku keselamatan dan tingkah laku kewarganegaraan keselamatan. Saya sedar bahawa masa anda amat berharga dan bermakna; walau bagaimanapun, penglibatan anda selama kira-kira 10 hingga 15 minit bagi menjawab soal selidik ini, akan menyumbang tinggi kepada kejayaan kajian ini.

Tiada jawapan yang betul atau salah dalam soal selidik ini. Hanya keikhlasan dan kejujuran anda diperlukan dalam menjawab soalan. Untuk makluman, semua maklumbalas anda adalah sulit dan hanya digunakan bagi tujuan penyelidikan akademik sahaja. Dengan ini saya sangat menghargai kerjasama dan penglibatan anda dalam kajian ini dan saya dahului dengan ucapan terima kasih. Jika anda berminat dengan kajian ini sila hubungi saya melalui email di chandrabose.suresh@gmail.com.

Terima kasih di atas kerjasama dan perhatian anda.

Yang benar,

Suresh Chandra Bose (818757)
Universiti Utara Malaysia, Kuala Lumpur

SECTION A/*BAHAGIAN A*

Please fill in blanks and tick (√) in the appropriate boxes that corresponds to your answer to each of the following questions below.
Sila isikan tempat kosong dan tandakan (√) untuk mewakili jawapan anda pada semua soalan di bawah.

1. Job title/ *Jawatan* : _____

2. Gender/ *Jantina* : Male/ *Lelaki* ☐ Female/ *Perempuan* ☐

3. Age/ *Umur* : _____ *years/ tahun*

4. How long have you been working? / *Berapa lama anda sudah bekerja?*: _____ years/ *tahun*

5. How long have you been working with the present organization?/ *Berapa lama anda bekerja dengan organisasi sekarang?*: _____ *years/ tahun*

6. Highest Educational level/ *Tahap pendidikan tertinggi*:

   Secondary school/ *Sekolah Menengah* ☐ Diploma/ *Diploma* ☐

   Certificate/ *Sijil* ☐ Degree/ *Ijazah* ☐

   Master / *Sarjana* ☐ Others/ *Lain-lain* ☐

7. Marital status/ *Status perkahwinan*:

   Married/ *Berkahwin* ☐

   Single/ *Bujang* ☐

   Divorced/ Bercerai ☐

8. Have you ever had any occupational accident ever since you started working in this organization? /*Adakah anda pernah mengalami kemalangan di tempat kerja sepanjang bekerja di organisasi ini?*

   Yes/Ya ☐ No/Tidak ☐

9. If yes, how many accidents have you had while working in this organization?/ *Jika ya, berapakah bilangan kemalangan yang pernah dialami sepanjang bekerja di organisasi ini?*

   1 – 3 ☐ 4 – 8 ☐

   9 – 15 ☐ More than 15/*Melebihi 15* ☐

10. Have you attended any occupational safety training? /*Pernahkah anda menghadiri latihan keselamatan?*

    Yes/ *Ya* ☐ No/ *Tidak* ☐

11. Please state how often do you have to attend safety training/ *Nyatakan kekerapan latihan keselamatan yang anda perlu hadiri*

    Every month/ *Setiap bulan* ☐

    Once in three months/ *Sekali dalam tempoh tiga bulan* ☐

    Once in six months/*Sekali dalam tempah enam bulan* ☐

    Once a year/ *Sekali setahun* ☐

    Not at all/ *Tiada langsung* ☐

SECTION B/*BAHAGIAN B*

Considering only your perception, please circle the most appropriate answer to you based on the scale below:
Dengan hanya mengambil kira pandangan anda, bulatkan jawapan yang paling tepat kepada anda berpandukan pada skala jawapan di bawah:

Strongly disagree *Sangat tidak setuju*	Disagree *Tidak setuju*	Somewhat disagree *Agak tidak setuju*	Neutral *Neutral*	Somewhat agree *Agak setuju*	Agree *Setuju*	Strongly agree *Sangat setuju*
1	2	3	4	5	6	7

No.	Statements/*Pernyataan*							
1	I make others feel good to be around me. *Saya membuat orang lain berasa selesa berada di sisi saya.*	1	2	3	4	5	6	7
2	Others have complete faith in me. *Orang lain mempunyai kepercayaan penuh keatas saya.*	1	2	3	4	5	6	7
3	Others are proud to be associated with me. *Orang lain berasa bangga jika dikaitkan dengan saya.*	1	2	3	4	5	6	7
4	I express with a few simple words what we could and should do. *Saya menzahirkan apa yang boleh dan patut dibuat dengan perkataan yang mudah.*	1	2	3	4	5	6	7
5	I provide appealing images about what we can do. *Saya memberikan gambaran yang menarik tentang perkara yang boleh kita lakukan.*	1	2	3	4	5	6	7
6	I help others find meaning in their work. *Saya menolong orang lain mancari makna dalam kerja mereka.*	1	2	3	4	5	6	7
7	I enable others to think about old problems in new ways. *Saya berupaya untuk membuat orang lain berfikir tentang masalah lama dengan cara baharu.*	1	2	3	4	5	6	7
8	I provide others with new ways of looking at puzzling things. *Saya menyediakan cara baharu untuk orang lain melihat masalah yang membingungkan.*	1	2	3	4	5	6	7
9	I get others to rethink ideas that they had never questioned before. *Saya merujuk orang lain untuk memikir semula idea yang tidak pernah dipersoalkan sebelum ini.*	1	2	3	4	5	6	7
10	I help others develop themselves. *Saya menolong orang lain untuk memajukan diri mereka.*	1	2	3	4	5	6	7
11	I let others know how I think they are doing. *Saya memberitahu orang lain bagaimana pandangan saya terhadap apa yang mereka sedang lakukan.*	1	2	3	4	5	6	7
12	I give personal attention to others who seem rejected. *Saya memberi sakangan peribadi kepada mereka yang sealah-olah tersisih.*	1	2	3	4	5	6	7
13	Management always welcomes opinion from employees before making final decisions on safety related matters. *Pihak pengurusan sentiasa mengalu-alukan pendapat daripada pekerja sebelum membuat keputusan muktamad dalam hal keselamatan.*	1	2	3	4	5	6	7
14	My company has safety committees consisting of representatives of management and employees. *Syarikat saya mempunyai jawatankuasa keselamatan yang terdiri daripada wakil pihak pengurusan dan pekerja.*	1	2	3	4	5	6	7
15	Management promotes employees involvement in safety related matters. *Pihak pengurusan menggalakkan pekerja untuk melibatkan diri dalam hal keselamatan.*	1	2	3	4	5	6	7

No.	Statements/*Pernyataan*							
16	Management consults with employees regularly about workplace health and safety issues. *Pihak pengurusan sentiasa berunding dengan pekerja tentang isu kesihatan dan keselamatan di tempat kerja.*	1	2	3	4	5	6	7
17	My company gives comprehensive training to the employees in workplace health and safety issues. *Syarikat saya sentiasa memberi latihan menyeluruh kepada pekerja tentang isu kesihatan dan keselamatan.*	1	2	3	4	5	6	7
18	New employees are trained adequately to learn safety rules and procedures. *Pekerja baharu diberi latihan secukupnya untuk mempelajari peraturan dan tatacara keselamatan.*	1	2	3	4	5	6	7
19	Safety issues are given high priority in training programs. *Isu-isu keselamatan diberi keutamaan dalam program latihan.*	1	2	3	4	5	6	7
20	Management encourages the employees to attend safety training programs. *Pihak pengurusan sentiasa mendarong pekerja untuk menghadiri program latihon keselamatan.*	1	2	3	4	5	6	7
21	Safety training given to me is adequate to enable me to assess hazards in workplace. *Latihan keselamatan yang diberikan kepoda saya mencukupi untuk saya menilaikan hazad di tempat kerja.*	1	2	3	4	5	6	7
22	In my workplace, management acts quickly to correct safety problems. *Di tempat kerja saya, pihak pengurusan bertindak pantas untuk menangani masalah keselamatan.*	1	2	3	4	5	6	7
23	Management acts decisively when a safety concern is raised. *Pihak pengurusan akan bertindak tegas apabila masalah keselamatan dibangkitkan.*	1	2	3	4	5	6	7
24	In my workplace management turns a blind eye to safety issues. *Di tempat kerja saya pihak pengurusan sengaja mengabaikan isu keselamatan.*	1	2	3	4	5	6	7
25	Corrective action is always taken when management is told about unsafe practices. *Tindakan pembetulan sentiasa diambil apabila pihak pengurusan dimaklumkan tentang amalan tidak selamat.*	1	2	3	4	5	6	7
26	In my workplace managers/supervisors show interest in my safety. *Di tempat kerja saya pengurus/penyelia sentiasa menunjukkan minat terhadap keselamatan diri saya.*	1	2	3	4	5	6	7
27	Management acts only after accidents have occurred. *Pihak pengurusan hanya bertindak selepas kemalangan berlaku.*	1	2	3	4	5	6	7
28	Managers and supervisors express concern if safety procedures are not adhered to. *Pengurus dan penyelia menunjukkan kebimbangan jika tatacara keselamatan tidak dipatuhi.*	1	2	3	4	5	6	7
29	Safety issues are included in meetings. *Isu keselamatan dibincangkan di dalam mesyuarat.*	1	2	3	4	5	6	7
30	I have been shown how to work safely. *Saya telah ditunjukkan bagaimana untuk bekerja dengan selamat.*	1	2	3	4	5	6	7
31	There are good communications about safety issues at the workplace. *Terdapat komunikasi yang baik tentang isu keselamatan di tempat kerja.*	1	2	3	4	5	6	7
32	Relevant safety issues are communicated properly. *Isu berkaitan keselamatan dibincang dengan baik.*	1	2	3	4	5	6	7
33	Employees are informed of the outcome of safety meetings. *Pekerja dimaklumkan tentang hasil keputusan mesyuarat keselamatan.*	1	2	3	4	5	6	7
34	Employees have adequate time to carry out individual and concurrent tasks. *Pekerja mempunyai masa yang cukup untuk membuat tugas yang diperuntukkan kepadanya dan tugas-tugas lain yang berkaitan.*	1	2	3	4	5	6	7

No.	Statements/*Pernyataan*							
35	There are sufficient staffs to carry out the required work. *Terdapat bilangan pekerja yang cukup untuk membuat kerja yang diperuntukkan.*	1	2	3	4	5	6	7
36	There is sufficient "thinking time" to enable employees to plan and carry out their work to an adequate standard. *Terdapat "tempoh berfikir" yang cukup bagi membalehkan pekerja merancang dan menjalankan kerja mengikut taraf piawaian yang ditetapkan.*	1	2	3	4	5	6	7
37	Distractions can be accommodated without adversely affecting work. *Gangguan boleh disesuaikan tanpa menjejaskan kerja yang dijalankan.*	1	2	3	4	5	6	7
38	Frustrations that arise from factors outside staff control can be accommodated without adversely affecting work. *Kekecewaan yang timbul daripada faktor luar kawalan pekerja baleh disesuaikan tanpa menjejaskan kerja yang dijalankan.*	1	2	3	4	5	6	7
39	Time schedules for completing work projects are realistic. *Jadual kerja untuk menyelesaikan sesuatu projek kerja adaloh realistik.*	1	2	3	4	5	6	7
40	Workload is reasonably well balanced. *Secara munasabah beban kerja adalah seimbang.*	1	2	3	4	5	6	7
41	Workload adjustments which have to be made at short notice can be accommodated without adversely affecting work. *Penyelarasan beban kerja yang terpaksa dibuat pada jangka masa yang singkat dapat disesuaikan tanpa menjejaskan kerja yang dijalankan.*	1	2	3	4	5	6	7
42	Knowing that other employees are waiting for the completion of a task which requires concentration can be accommodated within normal working activity. *Menyedari bahawa terdapat pekerja lain yang sedang menunggu, tugas yang perlu disiapkan dengan penuh teliti boleh disiapkan dalam tempah kerja normal.*	1	2	3	4	5	6	7

SECTION C/*BAHAGIAN C*

No.	Statements/*Pernyataan*							
43	I always volunteer for safety committee. *Saya selalu libatkan diri dalam jawatankuasa keselamatan secara sukarela.*	1	2	3	4	5	6	7
44	I help teach safety procedures to new employees. *Saya membantu untuk mengajar tatacara keselamatan kepada pekerja baharu.*	1	2	3	4	5	6	7
45	I assist others to make sure they perform work safely. *Soya membantu pekerja lain bagi memastikan mereka melakukan kerja dengan selamat.*	1	2	3	4	5	6	7
46	I get involved in safety activities to help others work more safely. *Saya melibatkan diri dalam aktiviti keselamatan untuk membantu pekerja lain melakukan kerja dengan selamat.*	1	2	3	4	5	6	7
47	I help others learn about safe work practices. *Saya membantu pekerja lain belajar mengenai amalan kerja yang selamat.*	1	2	3	4	5	6	7
48	I help others with safety related responsibilities. *Soya membantu pekerja lain berkaitan tanggungjawab dalom keselamatan.*	1	2	3	4	5	6	7
49	I make safety related recommendations about work activities. *Saya membuat cadangan keselamatan di dalam aktiviti kerja.*	1	2	3	4	5	6	7
50	I speak up and encourage others to get involved in safety issues. *Saya menyuarakan dan menggalakkan pekerja lain untuk melibatkan diri dalam isu keselamatan.*	1	2	3	4	5	6	7
51	I express opinions on safety matters even if others disagree. *Saya menyuarakan pendapot mengenai hal-hal keselamatan walaupun pekerja lain tidak bersetuju.*	1	2	3	4	5	6	7
52	I raise safety concerns during planning session. *Saya mengutorakan isu keselamatan semasa sesi perancangan.*	1	2	3	4	5	6	7

53	I protect other employees from safety hazards. *Saya melindungi pekerja lain daripada hazad keselamatan.*	1	2	3	4	5	6	7
54	I go out of my way to look out for the safety of others. *Saya bertindak diluar batasan untuk menjaga keselamatan pekerja lain.*	1	2	3	4	5	6	7
55	I take action to protect others from risky situations. *Saya mengambil tindakan untuk melindungi pekerja lain daripada situasi yang berisiko.*	1	2	3	4	5	6	7
56	I try to prevent others from being injured on the job. *Saya cuba menghalang pekerja lain daripada kecederaan semasa melakukan pekerjaan.*	1	2	3	4	5	6	7
57	I take action to stop safety violations in order to protect the wellbeing of others. *Saya mengambil tindakan untuk menghentikan ketidakpatuhan keselamatan demi untuk melindungi kesejahteraan pekerja lain.*	1	2	3	4	5	6	7
58	I explain to others that I will report safety violations. *Saya memberitahu kepada pekerja lain yang saya akan melaporkan sebarang ketidakpatuhan keselamatan.*	1	2	3	4	5	6	7
59	I tell others to follow safe work procedures. *Saya memberitahu pekerja lain untuk mengikuti tatacara kerja selomat.*	1	2	3	4	5	6	7
60	I monitor new employees to ensure they are performing safely. *Saya memantau pekerja baharu untuk memastikan mereka menjalankan kerja dengan selamat.*	1	2	3	4	5	6	7
61	I report others who violate safety procedures. *Saya melaporkan pekerja lain yang melanggar tatacara keselamatan.*	1	2	3	4	5	6	7
62	I tell new employees that violations of safety procedures will not be tolerated. *Saya memberitahu pekerja baharu bahawa ketidahpatuhan terhadap tatacara keselamatan tidak boleh diterima.*	1	2	3	4	5	6	7
63	I attend safety meetings. *Saya menghadiri mesyuarat keselamatan.*	1	2	3	4	5	6	7
64	I attend non-mandatory safety oriented meetings. *Saya menghadiri mesyuarat keselamatan yang tidak wajib.*	1	2	3	4	5	6	7
65	I keep informed of changes in safety policies and procedures. *Saya sentiasa mengetahui tentang perubahan terhadap dasar dan tatacara keselamatan.*	1	2	3	4	5	6	7
66	I try to improve safety procedures. *Saya cuba memperbaiki tatacara keselamatan.*	1	2	3	4	5	6	7
67	I try to change the way the job is done to make it safer. *Saya cuba melakukan perubahan terhadap kaedah melakukan kerja supaya ianya lebih selamat.*	1	2	3	4	5	6	7
68	I try to change policies and procedures to make them safer. *Saya cuba mengubah dasar dan tatacara supaya ianya lebih selamat.*	1	2	3	4	5	6	7
69	I make suggestions to improve the safety of a work. *Saya membuat cadangan untuk meningkatkan keselamatan dalam tugas.*	1	2	3	4	5	6	7

-THANK YOU/*TERIMA KASIH*-